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ABSTRACT

This curriculum guide was developed by a partnership between the College of Lake County (Illinois) and six industries in the county to design and implement a model workplace literacy program targeted to the needs of both employees and employers. To create a generalized, model curriculum that focused on the four general job categories of machine operator, mechanic, machinist, and shipper/receiver and that could be used in all six companies, the following process was employed: needs assessment questionnaire, site visits with employees and supervisors, analysis of information gathered for each company and identification of common needs, creation of learning goals and objectives, creation of a standard curriculum design, and development of procedures and resources for instructors. The curriculum guide is divided into four parts. The introduction contains a general overview of the curriculum's focus and purpose. The second part provides instructors with information and advice for creating relevant lessons in a workplace classroom. It covers the following topics: learning styles and strategies, instructional methods and approaches, customizing courses, authentic materials for instruction, multilevel classes, cross-cultural communication, transfer of skills to the workplace and beyond, and student assessment. The third part consists of detailed course outlines for the following basic skills areas: workplace math I-II, communication skills I (focus on reading) and II (focus on writing), problem solving in the workplace, and English as a second language in the workplace (levels 1-3). The appendix contains these items: learning style inventory for the workplace, sample lesson plan, more activities, topic outline for a basic blueprint reading guide, additional assessments, cross-reference of course goals with job categories, workplace problem map, suggestions for adapting General Educational Development preparation classes to the workplace classroom, correlation of job tasks with basic skill areas, characteristics of adult and workplace learners, and 82-item bibliography. (KC)

ED 402 464

BUILDING KNOWLEDGE IN THE WORKPLACE AND BEYOND

A Model National Workplace Literacy Curriculum

Revised Edition

A Project of

THE U.S. DEPARTMENT OF EDUCATION
NATIONAL WORKPLACE LITERACY PROGRAM
and
COLLEGE OF LAKE COUNTY

In partnership with:
Baxter Healthcare Corporation
General Metal Products Corporation
Kenall Manufacturing
MacLean-Fogg Company
Nichols Aluminum
Stone Container Corporation

Sites:
Abbott Laboratories
MacLean Power Systems

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This document was written and prepared in the first year (1994-1995) of the National Workplace Literacy Program by the following individuals, all of whom are associated with a National Workplace Literacy Program at the College of Lake County, Grayslake, Illinois:

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Preface

The revised edition of this model workplace curriculum was created for the purpose of adapting and modifying the previously created four-part curriculum in order to improve the usefulness and application of information. Input for this adaptation project was generated by instructors piloting the original curriculum in their workplace classrooms.

The objectives of this adaptation project were as follows:

- create an effective method of eliciting information on current curriculum usage in workplace classes
- consult with designated workplace instructors as to the usefulness of the theory and application of information in the curriculum
- evaluate workplace instructors' suggestions and comments on curriculum usage
- modify the curriculum as needed

The process used for this project was as follows:

- create an instructor questionnaire which would identify areas of difficulty in curriculum application and understanding
- contact instructors, monitor completion of the instructors' responsibilities, tabulate instructors' responses, and write a summary of suggestions for curriculum adaptation
- conduct interviews with the participating instructors to elicit information regarding curriculum usage and effectiveness
- facilitate a round table discussion for instructors participating in the adaptation project at the end of 48 hours of instruction
- evaluate and present to the National Workplace Literacy staff suggestions for adaptation in summary form.
- implement approved revisions

As a result of this adaptation project, the following revisions are incorporated into the original curriculum:

- completely revised ESL courses to create more appropriate sequencing and levels
- a learning style inventory that can be used in the workplace classroom along with suggested learning strategies for each type of learner
- a sample lesson plan that lists additional sections in the curriculum to find ideas, materials, and/or activities
- more ideas for workplace activities
- examples of possible assessments
- more cross-cultural communication suggestions
- characteristics of adult workplace learners
- minor editing revisions
- a basic blueprint reading instructional guide

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TABLE OF CONTENTS

The Introduction
Partnership Profiles 1
Overview of the Curriculum Process 2
The Goal of this Curriculum 3
Who are the Students? 4
Anticipated Student Accomplishments 5
Differences between Workplace Education and Adult Education 6
The Workplace Instructor's Roles 8
Preparation for a Workplace Course 10

The Guide
Learning Styles and Strategies 12
Instructional Methods and Approaches 18
Customizing Courses 35
Authentic Materials for Instruction 38
Multilevel Classes 41
Cross-Cultural Communication 45
Transfer of Skills to the Workplace and Beyond 49
Student Assessment 52

The Courses
Explanation of Course Outline Format 57
Introduction to Workplace Math I and II 59
Workplace Math I 60
Workplace Math II 64
Introduction to Communication Skills I and II 68
Communication Skills I - Focus on Reading 69
Communication Skills II - Focus on Writing 75
Introduction to Problem Solving in the Workplace 81
Problem Solving in the Workplace 82
Introduction to ESL at Work 1-3 87
ESL at Work Level 1 88
ESL at Work Level 2 92
ESL at Work Level 3 97

The Appendix
A Learning Style Inventory for the Workplace 102
A Sample Lesson Plan 106
More Workplace Activities 107
Instructional Guide for Basic Blueprint Reading 110
More Assessments 113
Cross Reference of Course Goals with Job Categories 119
Example of a Workplace Problem Map 123
Suggestions for a Functional Approach to a GED Preparation Class in the Workplace 124
Correlation of Job Tasks to Basic-Skill Areas 129
Characteristics of Adult Learners and Workplace Learners 133
Bibliography 134

The Introduction

INTRODUCTION

Partnership Profiles

The College of Lake County and six Lake County industries: Baxter Healthcare Corporation, General Metal Products Corporation, Kenall Manufacturing, Nichols Aluminum, Stone Container Corporation, and MacLean-Fogg Company formed an education and business partnership for the purpose of designing and implementing a model workplace literacy program targeted to the needs of both the employee and employer. Two additional companies, MacLean Power Systems and Abbott Laboratories, were added as sites after the initial implementation of the grant.

This partnership is a three-year national workplace literacy grant from the Department of Education and is charged with developing model practices and products that have national dissemination capability. These concepts are the basis for creating a model curriculum that focuses on four general job categories found and shared in the manufacturing, packaging, expanded metals, and pharmaceutical businesses.

Baxter Healthcare Corporation of Round Lake is an international pharmaceutical company whose educational needs include improving mathematical skills to reduce errors on graphs and charts and enhancing problem-solving and team-building skills.

General Metal Products Corporation, located in Lincolnshire, is a metal fabricator specializing in manufacturing housings for electronic equipment. Improved reading of computer-generated job tickets and production schedules as well as improved oral communication between co-workers and supervisors is the educational focus at this company.

Kenall Manufacturing in Gurnee is a manufacturer of high abuse lighting fixtures and is concerned with improving English language proficiency for safety and communication as well as understanding work order forms.

Nichols Aluminum of Lincolnshire manufactures aluminum coils for storm doors, windows, and other related products. The educational needs include improving basic skills to more effectively complete extensive training on new equipment as well as enhancing the communication skills of its employees.

Stone Container Corporation is located in North Chicago and is a manufacturer of corrugated containers. The company is interested in improving English language proficiency, reading, and mathematical skills in order to improve the process of machine set-up and operations.

MacLean-Fogg Company is in Mundelein and manufactures metal fasteners used in the automotive industry. MacLean Molded, a company specializing in insulators used on high-power lines, is also in this group. The educational needs for this partner include improving reading and mathematical skills as well as enhancing problem-solving and communication skills.

SITE: MacLean Power System is a manufacturer of varous products used in the construction and repair of high-power lines. The education needs for this site are improved reading and mathematical skills.

SITE: Abbott Laboratories is a corporation dedicated to the discovery, development, manufacture and marketing of healthcare products and services. The grant provides staff development opportunities and access to and adaptation of the National Workplace Literacy curriculum for Abbott's Lake County Skills Development Program.

The College of Lake County, established in 1969, is a comprehensive community college located in Grayslake, Illinois, thirty miles northwest of Chicago. The college's curriculum is designed to meet the needs of career, transfer, adult basic education, and continuing education students. The college has two campuses with a total enrollment of 16,473 students. Workforce readiness and skills enhancement are essential for continued economic growth in Lake County. In keeping with its mission, the College of Lake County addresses these needs by providing various basic skills programs for students to prepare for the workplace, to maintain existing jobs, to be more effective and productive workers, and to acquire skills for future changes.

Overview of the Curriculum Development Process

Two curriculum developers were charged with the task of identifying and developing a body of knowledge in the basic skill areas of English as a second language, communications, mathematics, and problem-solving in order to address the educational needs of the partner companies. To create a generalized, model curriculum that focused on the four general job categories of machine operator, mechanic, machinist, and shipper/receiver and could be used in all six companies, the following process was employed:

- a needs assessment questionnaire was developed to elicit information about the job categories, tasks, and responsibilities for each job category;
- a site visit and meeting were held with supervisors, workers, the plant manager, the human resources manager, a past student, and the president, vice president, or a representative of upper management at each company;
- the information was analyzed for commonly stated and observed educational needs in all six companies;
- these common needs were then used to create generalized, measurable content goals and learning objectives for the four basic-skill areas;
- the next step involved creating a standard curriculum design and translating that design into course outlines, describing structure and sequence of the goals and learning objectives, workplace contexts, basic skills, activities, and measurable outcomes; and
- finally, the remaining components of the curriculum were designed and developed to provide instructors with procedures and resources to draw upon in implementing the courses.

This curriculum's intent is be a model that can be tailored to each company and/or group of students. The central concept is that learning in a workplace classroom is most effective when it is experiencial, relates to the employees' and employers' real needs, and is a result of an ongoing, collaborative examination of the employees' everyday reality. Thus, this curriculum supports the view that the employers and employees must be involved in determining both the content and direction of the educational experience. Finally, this curriculum embodies the future trends in adult education because it promotes real, student-centered, communicative activities, connects content inside the class to the workplace and outside community, and emphasizes measurement of learning.

The Goal of this Curriculum

The primary goal of this curriculum is to guide and enable instructors of workplace students to create meaningful classroom experiences, so that students can enhance basic skills and transfer these skills to their jobs, their personal lives, and their communities. This curriculum is divided into four parts: *The Introduction, The Guide, The Courses* and *The Appendix.* The first part, *The Introduction,* contains a general overview of the curriculum's focus and purpose. The second part is *The Guide,* and it provides instructors with information and advice for creating relevant lessons in a workplace classroom. It covers such topics as:

- Learning Styles and Strategies
- Instructional Methods and Approaches
- Customizing Courses
- Authentic Materials for Instruction
- Multilevel Classes
- Cross-Cultural Communication
- Transfer of Skills to the Workplace and Beyond
- Student Assessment

The third part of the curriculum, *The Courses,* consists of detailed course outlines for the following basic-skills areas:

- English as a Second Language
- Communication Skills
- Mathematics
- Problem Solving

Last of all, *The Appendix,* contains a learning style inventory, a sample lesson plan, more activities and assessments, a basic blueprint reading guide, suggestions for adapting G.E.D. preparation classes to the workplace classroom, and several charts and examples from *The Guide.*

The content of the courses reflects a generalization of the stated and observed needs of all six workplaces. Because this curriculum is generalized across six workplaces, the workplace instructors must gather information that will allow them to make their courses specific to each workplace. The course content should be adjusted according to the current needs voiced by students and observed by instructors throughout the program. This curriculum will be reshaped

by every classroom experience; this allows it to be an ongoing process.

Who are the students?

The students involved in the program come from diverse backgrounds. Some are beginning students of English. Others have advanced English skills. Ten percent are native speakers and eighty percent are not. Thirty percent of the students are women, and seventy percent are men with an age range of eighteen to sixty years. Although some students have a high school education, the majority have minimal educational experience. Many of the students are non-native speakers of English. All of them are employed in manufacturing and pharmaceutical industries. As mentioned in the introduction, employees with educational needs in the basic-skills area tended to work in the four job categories of machine operator, mechanic, machinist, and shipper/receiver.

Close to eighty percent of the students involved in this program are native speakers of Spanish. Nearly ten percent are native Polish speakers, along with an Arabic, a Turkish, an Italian speaker, and a speaker of Vietnamese. The remaining ten percent are U.S.-born and speakers of English. Although some of the students have either attended or graduated from high school in their native countries or in the United States, the majority have had limited experience with formal education. There are also approximately five percent who are illiterate, with three percent of this number being attributed to native speakers. For some people the last grade they may have completed is the third grade, and they are now in their fifties. In cases such as these, a student's memory of formal education is long ago, and the prospect of entering a classroom again after forty years may prove challenging.

The following chart is a portion of the chart located in *The Appendix*. This chart outlines the tasks involved in the four job categories of machine operator, mechanic, machinist, shipper and receiver as defined in the *Dictionary of Occupational Titles*, and it correlates the basic-skill areas to these tasks. This chart should be useful for instructors who need to relate the course content specifically to their students' jobs.

Correlation of Job Tasks to Basic-Skill Area
(Complete chart is located in *The Appendix)*

Jobs and Their Tasks	Basic Skills					
Machine Operators' Tasks	Reading	Writing	Listening	Speaking	Math	Problem Solving
Setting up machine	✔	✔	✔	✔	✔	✔
Selecting, positioning, and securing fixtures	✔		✔	✔	✔	✔
Selecting and using measuring equipment	✔	✔	✔	✔	✔	✔

Anticipated Student Accomplishments

Beyond the general curriculum goal to provide a framework for basic skills education, there are more specific goals and expectations for each course, and these goals and objectives can be found in the course outlines located in the section called *The Courses*.

Each student will have his or her own personal goals for the course, as will the instructor. However, given the scope of the goals for each course, there are anticipated results for each course or course area. After successful completion of each of the course areas, an employer can expect to see:

English as a Second Language	The ability to: • engage in verbal interactions with confidence • discuss basic work-related problems • read and understand basic workplace forms, instructions, and procedures • fill out basic forms, write notes, messages or instructions, and complete simple charts or graphs
Communication Skills I	The ability to: • read work-related information for comprehension • interpret written company policies or graphic information • evaluate written job procedures or descriptions • listen to and comprehend work instructions • give directions to co-workers • get information from a supervisor
Communication Skills II	The ability to: • fill in requested information on work forms • apply note-taking skills in training sessions • write short notes or simple memos • write a descriptive paragraph of a workplace situation • write a sequential job procedure • organize information into a written report • participate in a meeting
Workplace Math I	The ability to: • use basic calculations involving whole numbers, fractions, and/or decimals that are used on the job • do measurement readings and conversions • interpret company charts, graphs, and diagrams

Workplace Math II	The ability to: • work with standard or metric measurement • use company measurement techniques for precision and accuracy on the job • use ratio, proportion, and percentage as they relate to the production process • calculate weights, perimeter and area of products
Problem Solving	The ability to: • perform as a team member on a group project • define possible workplace problems and identify causes • evaluate solutions to a problem • create an action plan for implementation of a possible solution

For additional information that links the courses' goals with the job categories of machinist, mechanic, machine operator, shipper and reciever, see the chart in *The Appendix.*

Differences between Workplace Education and Adult Education

Many new workplace instructors have had experience teaching basic skills in adult education settings. They are accustomed to multilevel and culturally diverse classroom situations. They know how to apply principles of adult learning so that students build their esteem as adult learners, and they are aware of the different ways in which students learn. Facilitating discussions and group activities so that students improve basic skills and practice communication skills is at the core of what adult education teachers do. As a consequence adult instructors are well-prepared in many ways to step into the workplace classroom.

They are, however, conditions in the workplace that do no exist in the adult education classroom. Workplace students come to classes because their learning needs have been identified by supervisors and through testing. Adult education students may decide for themselves that they need to improve a certain skill for employability, or they may simply want to meet new people. Workplace students with basic skills educational needs are told of their need, and are given a choice as to whether to participate in the classes. Because evaluation is an important part of workplace education, the workplace instructor may deal explicitly with motivation. Adult education students choose to participate in classes wholly of their own volition, so motivation tends to be high.

Other differences between workplace education and traditional adult education are the time and the conditions of the classes. Workplace classes tend to be held during the day. Students in these programs go to class during one hour of their shift and one hour of their own time, before or after the shift. In this program, the class time that happens on the student's own time is paid for by the company. However, the class time that happens during the shift may be interrupted by

production concerns. If a large order must go out quickly, the class must be missed. On the other hand, adult education classes tend to be held in the evening, and students attending have often worked all day before the class begins. For them, work may also interfere with class, as can family commitments, and other responsibilities.

And finally, instructors in the workplace combine students' needs and interests with the employers' needs and interests, to create a workplace course that meets a variety of needs. The students in a workplace class may be from diverse backgrounds, but they do have one thing in common: the workplace. Instructors in traditional adult education classes have students from diverse backgrounds who share nothing but the fact that they have signed up for the class. Adult education instructors usually find the content and context for their teaching in the everyday lives of their students.

Workplace education classes begin with a formal identification procedure (interviews with supervisors and testing). Then, participants set their educational goals, and the classes begin. The workplace instructors work hard to motivate students, and they learn to accept that production demands may mean that their classes have twelve students on Monday and two students on Wednesday. Workplace instructors formally evaluate their students' ability to master learning objectives, and they are accountable for all that occurs in the classroom.

There is value in examining the differences between the workplace and adult education for those instructors who see the need to shift some of their assumptions and expectations. Basically, instructors will find that there is plenty of variety possible in the workplace. Workplace classes are generally held for brief lengths of time and involve a high level of accountability. There is a multiple focus on student needs, company needs, workplace contexts for lessons, and application of the skills back to the job and community.

The following chart summarizes some major differences in teaching in a workplace program and an adult education program.

Workplace Education Versus Adult Basic Education

	Workplace Education	Adult Basic Education
Instructor's Roles	• to become familiar with the company culture and products • to upgrade skills of the employees in response to employees' and employers' needs	• to become familiar with the characteristics of adult learners • to upgrade skills of the students in response to their needs and the communities' needs

Course Goals	• students and instructors customize goals to meet company and student educational needs • course goals are based on functions to be performed in the workplace	• students select course and are placed by an entry level assessment • course goals focus on life skills and are often pre-determined by educational level of student
Instructional Methods and Strategies	• are chosen based on the workplace environment, learner needs, and the curriculum	• are chosen based on the choices of students, instructors, and adult education departments
Assessment	• instructor creates assessments based on specific objectives through a variety of methods	• instructor usually employs standardized tests in combination with more subjective measures
Transfer of Learning	• emphasis is on transferring new skills to students' jobs, their personal lives, and their communities	• emphasis is on transferring new skills to students' personal lives and their communities
Texts and Resources	• primary texts and resources used are authentic to the workplace • employees' jobs determine the materials used in classroom instruction	• primary texts and resources focus on life skills for the adult student • students' needs determine the materials used in classroom instruction

The Workplace Instructor's Roles

Instructors enter the field of workplace education with a variety of professional attributes such as teaching style, knowledge of subject, and teaching experience. They also come with a variety of personal qualities that give their unique imprint to the workplace classroom. This section focuses on the varied roles of the workplace instructor. There are some unique aspects to teaching in the workplace and teachers are most likely to see this in the responsibilities they encounter in workplace instruction. Instructors who are accustomed to adult education classes will recognize the roles of *facilitator, educational specialist,* and *reflective teacher.* The roles of *ethnographer* and *curriculum adapter* may offer new contexts and challenges to the workplace experience. Not all workplace instructors will feel comfortable in all the roles, but there is a need to explore these roles and adapt them to one's preferred teaching style. The following chart shows the varied workplace instructor's roles and characteristics of each role.

Roles of Workplace Instructors

Facilitator	Facilitators: • guide classroom activities, rather than make themselves the center of them; • observe students' learning styles and offer suggestions about different ways to approach learning; • understand that adult students bring a lifetime of experience to the classroom, and incorporate that knowledge into the classroom.
Curriculum Adapter	Curriculum Adapters: • learn about their students and their workplace; • choose curriculum objectives based on student needs; • adapt objectives to meet the specific needs of the employer and the students.
Educational Specialist	Educational specialists: • assess student needs; • work with students to determine the necessary learning objectives • provide appropriate support and practice for students to master the designated skills; • inform students about their progress and mastery of the objectives.
Ethnographer	Ethnographers: • ask students questions about their jobs, their lives outside work, their lives in their native countries, and what is important to them; • observe the way in which students communicate with other people in class and on the job; • observe students doing their jobs, interacting with supervisors and co-workers; • talk with supervisors to find out what their expectations are and to gain information about how they communicate; • incorporate the information they have gathered into lesson plans; • use information they have gathered to individualize learning and to help address specific learning needs.

Reflective Teacher	Reflective teachers: • consider and reconsider their own teaching practice; • elicit feedback from students, colleagues, mentors, and grant staff; • are willing to use any technique that will help students learn; • are continually trying out new ideas in the classroom and seeking out new information about the field.

Support in New Teaching Roles

The variety of roles that a workplace instructor must fulfill appear overwhelming at first, but the workplace teaching experience is bolstered by many different opportunities to grow and develop as a teacher. This support includes:

- a teaching supervisor who provides ongoing professional development through orientation, staff development workshops, informal discussions, and information about local, regional, or national workshops;
- the Teachers Assisting Teachers (T.A.T.) Program, which allows experienced teachers and less experience teachers to work together to develop workplace teaching techniques along with skills in teacher education;
- information about reflective teaching which is a key practice in education to help teachers better understand how they teach from their students' point of view; and
- a teacher supervisor who provides recently published teaching texts and resource materials for workplace instruction.

As teachers develop their various roles as a workplace instructors, they enhance and extend their teaching experience.

Preparation for a Workplace Course

There are many functions that precede an instructor walking into a workplace classroom. These functions involve interactions between the program staff, the company, and the students. These interactions may include:

- assessment of potential students
- placement of students in classes
- arrangement of class time around production schedule
- rearrangement of employee work schedules
- employee notification of classes

The workplace instructor must also prepare for the course. Even though planning and customizing a course will continue with the students' input, instructors need to have a solid foundation before entering the classroom. The checklist below will help instructors keep track of their own pre-course preparations.

Preparing to Teach in the Workplace: Teachers' Checklist

	Have It or Have Done It	Need to Do It	Can Get It From...
Tour of the worksite and classroom			
Information about the company			
Information about the students' jobs			
Class schedule			
Orientation with program staff			
Selection of course goals and objectives			
Adaptation of course goals and objectives to specific workplace			
Selection of workplace text and authentic workplace materials			
Preparation of an oral or written students' needs questionnaire			
Preparation of a warm-up activity and a lesson for the first day			
Classroom resources			

The Guide

LEARNING STYLES

Learning styles are the ways in which people prefer to take in, store, and retrieve information whether they are on the job or in a non-work environment. Sometimes the hectic pace of the workplace makes it easy to forget that everyone learns differently. It is a goal of this curriculum to help students and instructors become more aware of how they learn best. Discovering one's preferred learning styles can offer clues about the best ways to approach tasks. Perhaps the information presented here will help learners discover their own preferred learning styles and become sensitive to those of their co-workers.

Analytic-Global Dimension

One element of learning style is the analytic-global dimension. Analytic learners tend to focus on the details and combine them until they get the big picture, whereas, the global learners focus on the big picture first and then fill in the details. People may be predominantly analytic or global or a mixture of both, depending on the task at hand. Characteristics of each dimension as they may be displayed in a workplace context are in the chart, ***Characteristics of the Analytic-Global Dimension in a Workplace Context***, on page 15. Learners in the classroom need to make the most of their learning style preferences, but they must also develop learning behaviors that might not initially feel right to them. For example, an analytic learner should not focus exclusively on memorizing vocabulary, but should also strive to see patterns and connections between ideas. On the other hand, a global learner should practice breaking a task down into sequential steps in order to understand the parts that comprise the whole. Instructors can assist the students in expanding their natural learning styles by providing a wide range of activities that incorporate different learning styles.

Sensory Preference

The ways in which our brains most successfully take in information are rooted in physical preferences. The three main sensory preferences are:

1. Visual - learns best by reading and seeing things
2. Auditory - learns best by hearing
3. Kinesthetic/Tactile - learns best by moving or touching things

Everyone has sensory preferences. However, many people have a balance between two or three of the sensory modes. It is important for students to know their preferences, so that they will

know how to optimize their learning in the classroom and on the job. For example, Juan works in a manufacturing company and his preferred way to take in, store, and retrieve information is a combination of visual and kinesthetic/tactile with auditory being his weaker sensory mode. His job requires that he verbally receive his work instructions from his supervisor every morning (*auditory).* He backs this up by "visualizing" the tasks to be done that day and may even write them down in a notebook or on a piece of paper (*visual/kinesthetic).* When Juan needs to have a task clarified, he may ask his supervisor to watch him perform the task to make sure he is doing it correctly (*kinesthetic/tactile).* Juan has learned how to take advantage of his stronger learning modes to reinforce the weaker sensory mode. The chart ***Characteristics of the Sensory Preference Dimension in a Workplace Context***, on the following page is an aid in determining one's own sensory preferences and those of students.

A learning style inventory for students in the workplace is located in the *Appendix*.

CHARACTERISTICS OF THE SENSORY PREFERENCE DIMENSION IN A WORKPLACE CONTEXT

VISUAL	*AUDITORY*	*KINESTHETIC*
• Prefers written work instructions	• Prefers oral work instructions-has more difficulty with written instructions	• Likes moving around when working or learning a new task
• Likes learning a new task by first observing it rather than talking about it	• Likes discussing work instructions with co-workers	• Enjoys learning a job procedure using a "hands-on approach"
• Finds verbal instructions difficult	• Likes talking to self aloud when learning a new task or procedure	• May need to write down oral instructions
• May take notes when listening to directions or in a meeting	• Likes hearing about meetings as opposed to reading a memo	• May tap pencil or foot during company meetings
• Makes lists of daily work activities to be completed	• Likes listening to music, hum, or sing while working	• Likes tackling problems by physically demonstrating possible solutions
• Is not too easily distracted from the job or task	• Can be easily distracted on the job	• Uses hands and gestures when talking to co-workers
• Visualizes tasks on the job to more clearly understand what needs to be done	• Remembers faces	• Can easily repair or assemble things on the job
• Can easily remember information from charts and diagrams by closing eyes and "seeing" them again	• Learns a job or procedure by memorizing the steps in a sequence	• Enjoys working on new machines
• Uses advanced planning	• Very outgoing and social-usually a willing volunteer	• Prefers a variety of duties on the job
• Is usually meticulous and notices details	• Prefers jobs or tasks in which listening plays an important part	• Is outgoing and likes physical activity

CHARACTERISTICS OF THE ANALYTIC-GLOBAL DIMENSION IN A WORKPLACE CONTEXT

Analytic (Left Brain)	*Global (Right Brain)*
• Does a job step by step	• Does a job in by looking at the "whole picture"
• Analyzes the job	• Uses intuition and creative problem solving in work decisions
• Prefers a structured workday	• Enjoys the challenge of spontaneous changes or requests made on the job
• Expresses little emotion with co-workers	• Expresses feelings with co-workers
• Is more likely to remember names of co-workers	• Is more likely to remember co-workers by their faces
• Makes most work decisions based on logic, facts, and "common sense"	• Makes some work decisions on an emotional level
• Solves work problems in step-by-step manner	• Solves work problems by looking at the whole situation
• Feels that time drives the product	• Feels that the product drives the time
• Learns new things on the job by listening to instructions and talking about them	• Learns new things on the job with a hands-on approach
• Prefers to write down and discuss details of the day or job	• Prefers to draw diagrams, handle tools, and work on machines
• Follows oral work instructions well	• Follows written or demonstrated work instructions well
• Talks to others to learn more about a job or procedure	• Uses images in the mind to learn more about a job or procedure
• Prefers work performance to be evaluated using a structured test	• Prefers work performance to be evaluated using an overall, unstructured format
• Takes few risks on the job	• Takes some risks on the job
• Looks at differences in job tasks	• Looks at similarities in job tasks
• Thinks about one thing at a time on the job	• Thinks about many things at a time on the job

LEARNING STRATEGIES

In contrast to general learning styles, learning strategies are specific actions, behaviors, steps, or techniques used by students to enhance their own learning. For example, if students do not know the meaning of a word in a written passage, they may guess the meaning from the context of the passage. These strategies are very important because they are self-directed devices that students use to reinforce their learning. Students are often not aware of the power of consciously using such strategies to boost their learning ability in the classroom, on the job, and outside the workplace. Instructors should help students develop a sense of these learning strategies they already use and help them incorporate new learning strategies into their daily lives. Instruction in this area should include demonstrating when a certain strategy might be useful, how to apply it and how to transfer it to other tasks in the workplace as well as non-work environments. The instructor should also capitalize on the unique strategies the students have developed on their own. Two basic categories, direct and indirect strategies, are easily incorporated into classroom instruction and are displayed in the boxes below. Direct strategies are used in the actual acquisition of the skills being taught, whereas, indirect strategies are used to assist or enhance the learning process of the student. What follows are two basic categories, three subcategories and examples for each.

Direct Learning Strategies

❶ Memory Strategies	Grouping, imagery, rhyming, and organized reviewing
❷ Cognitive Strategies	Thinking out loud, applying critical thinking skills of comprehension, application, analysis, and evaluation
❸ Compensation Strategies	Guessing meanings from context, estimating answers in math, using synonyms to convey meaning

Indirect Learning Strategies

❶ Metacognitive Strategies	Linking what is already known to what to what is being learned, self-evaluating one's progress, and monitoring errors in the learning process
❷ Affective Strategies	Encouraging oneself through self-rewards and reducing anxiety
❸ Social Strategies	Asking questions for clarification, working cooperatively with co-workers and classmates, and becoming culturally aware

Adapted from Scarcella, Robin C. and Rebecca Oxford. *The Tapestry of Language Learning-The Individual in the Communicative Classroom.* Boston: Heinle & Heinle Publishers, 1992.

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TIPS FOR APPLYING LEARNING STYLES AND STRATEGIES IN A WORKPLACE CLASSROOM

- Introduce learning styles and strategies toward the beginning of the course
- Use a learning style inventory recommended by the program or create a learning style inventory from the charts in this section
- Be familiar with one's own learning/teaching style and share this with the students
- Encourage students to state their preferred learning styles on the job. Maybe co-workers and supervisors will want to find out their own learning styles
- Encourage students to practice using the styles and strategies they don't prefer or are not familiar with so they can learn in as many circumstances as possible
- Observe students' behavior in the classroom as it relates to learning styles and share this information with them to confirm their preferred learning styles
- Encourage students to observe co-workers behavior as it relates to learning styles
- Incorporate activities into lesson plans that use a variety of learning styles
- Encourage students to be aware of the time and environment in which they learn best
- Model learning styles and strategies when needed
- Reinforce learning strategies throughout the course!

INSTRUCTIONAL METHODS AND APPROACHES

There are a number of different teaching methods and instructional approaches that instructors can choose from when designing a lesson or a course of study. Among the most useful methods and approaches in a workplace classroom are cooperative learning, communicative language teaching, project-based learning, language experience approach, the problem-posing approach, and the math standards. The information below gives a brief description of each method or approach and how the instructors can incorporate them into their classroom instruction. Resources and references are listed to encourage further examination and application of these methods. Some methodologies will work in all the courses and others are specific to certain courses; therefore, a guide to appropriate courses and levels is also given.

Cooperative Learning

What is it about?	*How does one use it?*
Cooperative learning optimizes small group learning by helping group members understand the importance of working together productively. This can be accomplished by incorporating the following five elements in group activities: • Positive interdependence encourages all members of the group to have a common goal. All must succeed for the group to succeed. • Individual accountability stresses that each member is also responsible for fulfilling the duties of his/her assigned role. • Face-to-face interaction promotes trust, commitment, and group togetherness.	To adapt cooperative learning in a workplace classroom, class activities are built by placing job-related content into a cooperative learning structure. Some possible structures for a workplace application are: **Inside-Outside Circle**: Students stand in two concentric circles, the inside circle facing the outside circle. Students ask their partners questions, respond to teacher's prompts, or share information. Circles rotate based on teacher's cues. **Workplace Application:** The instructor copies or draws hazard symbols from the workplace. The symbols are placed on one side of a set of 3 x 5 cards. The proper verbal warning is written on the other side. Students quiz each other by first showing the picture side of the card. After the partner gives the proper warning, they discuss the correct response to that warning. Students trade cards before rotating the circles (*ESL 3).*

What is it about?	How does one use it?
• Social interaction skills of encouraging, listening, helping, clarifying, checking understanding, probing, enhance such skills as communication, trust, leadership, decision-making, and conflict management. • Processing/reflection encourages members to assess their joint efforts and suggest improvements. Cooperative learning activities help students retain what they have learned without memorizing. They also learn to think about different ways of expressing themselves. The students have more interaction and greater opportunity to speak than in a conventional class. The instructor acts as a facilitator by monitoring each group, giving feedback, and guiding the group with as little interference as possible. Students will be assigned roles or they will choose roles for an activity. The instructor should make sure that students do not always have the same role. Some possible roles that students can be assigned in a group are as follows: • *Checker* - ensures that everybody understands the work in progress • *Encourager* - provides support and motivation to members of the group • *Materials Manager* - collects all necessary material for the group • *Quality Controller* - makes sure the group product meets pre-determined standards	**Corners:** Students go to a specified corner of the room, or the corner that represents the statement which best matches their opinions or ideas. They share their knowledge and ideas with other members of the corner. Finally each corner summarizes its findings for the entire class. **Workplace Application:** Place different company products in separate corners of the room. Ask the group in each corner to determine the perimeter, area, and weight using the appropriate tools. Ask each group to share its results (*Workplace Math II*). **Think-Pair-Share:** Students listen while the instructor poses a question. Then, they are given a chance to think of a response. Students pair with one another to share their thoughts. Then the pairs share their ideas with the original group. **Workplace Application**: Make a transparency of a work order or a form from personnel that employees must fill out. Using an overhead projector display the transparency on a whiteboard. Ask students to locate specific questions on the form, think about it, share thoughts with a partner, and have a designated student from each pair go to the board and fill in the correct blank (*Communication Skills I*).

What is it about?	How does one use it?
• *Scout* - seeks additional information • *Timekeeper* - keeps the group focused on the task • *Summarizer* - paraphrases what has been said and pulls together the conclusions of the group This is only a basic list. Others may be created to suit the group and activity.	
Resources and References: Kagan, Spencer, *Cooperative Learning.* San Juan Capistrano, Calif.: Kagan Cooperative Learning, 1992. High, Julie, *Second language Learning Through Cooperative Learning.* San Juan Capistrano, Calif.: Kagan Cooperative Learning, 1993.	**Applicable in these courses and levels**: ESL in the Workplace - all courses, all levels Workplace Math I & II Communication Skills I & II

Project-based Learning

What is it about?	*How does one use it?*
Project-based learning takes place when a group of three or more students work together on an issue, a task, a situation, or a problem and present their ideas or solutions to the class or the appropriate audience. This approach to classroom instruction models the real-world and real-work situations that involve solving problems and generating new ideas as members of a team or group. This method can be used to : • encourage group interaction and development of interpersonal and team-building skills • acknowledge the student's experience and knowledge • practice critical thinking skills • test understanding of a concept or process • generate a plan to implement ideas or solutions • offer students language and communication practice To be most effective, the exercises used in conjunction with this method should be realistic and related to the students' lives or work situations. They should be challenging but not too complex for the time allowed.	To adapt project-based learning in a workplace class, use the following steps: 1. The students and instructor generate a group project goal based on a workplace issue, situation, or problem. 2. As a group, break the goal down into logical steps and assign duties or roles to all team members. 3. Students report to each other, receive feedback from group members, renegotiate any tasks, review information, edit, and finalize project. 4. A presentation using any number of possible formats such as multi-media, role play, booklet, training program, or debate is given by the group. 5. The audience gives feedback on the presentation. The group evaluates the project, reflects on the process, and offers suggestions for improving the process.

What is it about?	*How does one use it?*
	Workplace Application: The students decide to create a book of workplace gestures to aid in communication when machinery is too loud for verbal communication. The team makes a list of possible employees who could use this system. The team interviews the employees for suggested gestures that reflect the communication requirements of their jobs. A common list is complied, and photographs are taken. The draft is given back to the employees for feedback. The product, a book, is distributed to the employees. If possible, the team conducts a training session or presentation.
Resources and References: Carnevale, A.P., L. J. Gainer, L. J., and A. S. Meltzer, *Workplace Basics Training Manual.* San Francisco, Calif.: Jossey-Bass, 1990.	**Applicable in these courses and levels:** ESL in the Workplace - all courses, all levels Workplace Math I & II Communication Skills I & II Problem Solving in the Workplace

Communicative Language Teaching

What is it about?	*How does one use it?*
Communicative language teaching focuses on language as communication. It is learner-centered because learners get a chance to express their needs and ideas. It is also experience-based because the learners create communicative situations in which they get to express meaningful information. This interactive process of communication incorporates some of the following features: • Meaning and communication are primary; accuracy comes later. • Language is presented in the context of learners' jobs and lives. • Comprehensible pronunciation, not native-speaker proficiency, is sought. • The sequence of teaching units is determined by the context and content that impacts the learner most. • The instructor facilitates the communication process between the learners, organizes resources, and becomes a resource and guide within the classroom. • Students interact primarily with each other through pair and group work, with teachers supervision. In communicative language teaching, learning is effective because the learners are actively involved in the process and talk about something that affects them personally. Learners have to use every skill they have in order to get their meaning across.	Communicative principles can be applied to a wide variety of classroom activities and can be used at any level. There are a variety of games, role plays, simulations, interviews, and task-based communication activities that support communicative language teaching in the workplace. One possibility is *information gap* activity. In this activity, students work in small groups or pairs, and they depend on one another for information needed to complete a task or solve a problem. For example, each student may have different information on the same topic and must share that information in order to understand the situation or solve the problem. **Workplace Application:** The instructor divides the class into pairs. Partner A is given a copy of a pay stub which contains information about pay date, hours worked, and rate of pay. Partner B is given a copy of the same pay stub which contains information about gross pay, social security tax, and insurance deductions. Without looking at each other's pay stubs, the two must ask each other questions until they both have a completed pay stub. When that is accomplished, the instructor asks students to work together to determine gross pay, total amount of deductions, and net pay for this pay period.

What is it about?	*How does one use it?*
Resources and References: Richards, Jack C., and Theodore S. Rodgers, *Approaches and Methods in Language Teaching.* Cambridge language teaching library. Cambridge, Eng.: Cambridge University Press, 1986. Klippel, Friederike, *Keep Talking Communicative fluency activities for language teaching.* Cambridge, Eng.: Cambridge University Press, 1993. Bowen, J. Donald, et al, *TESOL Techniques and Procedures.* Boston, Mass.: Heinle & Heinle Publishers, 1985.	**Applicable in these courses and levels**: ESL in the Workplace - all courses, all levels Communication Skills I & II Problem Solving in the Workplace

Language Experience Approach (LEA)

What is it about?	*How does one use it?*
This approach uses students' own spoken English as their first reading text. Because listening and speaking skills usually develop before reading and writing skills, LEA emphasizes oral conversation and development of a story before it is read by the students. The student's exact words, with all the requisite problems of grammar and style, become their first reading matter. The instructor can then create language exercises based on the actual errors that arise from students' spoken language. In this way, students can make a direct connection between meaning and the written word. LEA builds on what students know, giving them a meaningful language experience. The students are given ownership of their writing, with the instructor as a facilitator. This process makes clear the relationship between speaking, listening, reading, writing, and thinking.	To adapt a language experience approach in the workplace class, use the following steps: 1. The instructor engages the students in conversation about an activity, an experience, a process, or a picture so that they can develop a story or description using all the English they have. The instructor asks students the basic what, where, when, and who questions, if they need prompting. 2. The instructor writes down the students words exactly, without correction. 3. The instructor reads the story aloud and the students listen to what their own words sound like, while following the written words. The instructor can ask for clarification of the students' words, but he or she does not correct the student's language. 4. This written piece can be used for several reading exercises, such as underlining key words, circling all words that begin with a particular letter, cutting the story into parts and reassembling it, using a cloze exercise, or asking other students questions about the story. The story can also be the basis for grammar exercises. 5. Finally, the students will be able to successfully read the story or description aloud on their own.

What is it about?	*How does one use it?*
	Workplace Application: Students describe what they do on their jobs. The instructor copies down their words exactly. (The instructor may require an assistant or tutor to help in this approach). The instructor reads the description aloud and the students listen, making corrections, as necessary. The description is read aloud several times as the students follow the written words. The instructor applies any of the previously-mentioned reading activities. Ultimately, the students will be able to successfully read a description of their jobs.
Resources and References: Reck, D., et. al. *Tutoring ESL: Handbook for Volunteers*. Tacoma, Wash.: Tacoma Community House, Bureau of Refugee Assistance, 1985.	**Applicable in these courses and levels**: ESL in the Workplace - Beginning to Intermediate

Problem-Posing

What is it about?	*How does one use it?*
Problem-posing is a tool for developing critical thinking and language skills. It is a questioning process that structures dialogue in the classroom. Teachers formulate questions to encourage students to make their own decisions about a situation. This method draws out students' shared experiences. Problem-posing consists of the following components: • The instructor selects an issue after listening to and observing the students. • The issue is presented back to the students in a code form such as a photo, written dialogue, a story, or a drawing. • Concrete questions of who, what, and where are asked to help describe, define, and personalize the problem. • Higher-level how/why questions about issues raised by the code help students relate the issues to their own lives. • Finally, the students create solutions for the problem and discover the consequences for each solution. The problem-posing process directs students to name the problem, understand how it applies to them, determine the causes of the problem, generalize it to others, suggest alternatives or solutions to the problem, and act on them.	To adapt problem-posing in a workplace class, use the following steps: 1. Students describe what they see in a presented code. 2. Students identify the issue or problem brought out in the code. 3. Students discuss the problem within a workplace context and tell <u>why</u> there is a problem. 4. Students relate the issue or problem to their own lives 5. Students suggest possible solutions to the problem and discuss the consequences of various courses of action. 6. Students act on their plan **Workplace Application:** The following workplace scenario is an example of a possible code that can be incorporated into a dialogue or a written story. (*Remember-the most important issues come from listening to and observing students in the class).* The questions for discussion of the code are only offered as suggestions. CODE: Employees are being required to produce more and more product. They are finding it difficult to produce at the level required and still follow safety regulations. An accident happens as a result. (The instructor creates a written story or dialogue of this code)

What is it about?	*How does one use it?*
A ***code*** is an oral, written, or pictorial presentation of an issue or problem identified by the students. This code may be a drawing, a photo, a written dialogue, an oral or written story, or an event. The instructor selects and prepares the best code form to illustrate the issue or problem.	1. DESCRIBE THE CONTENT Who are the people involved? Where are they? What are they doing? What is wrong? 2. DEFINE THE PROBLEM What are the employees thinking? How do they feel? Why do they feel that way? 3. DISCUSS THE PROBLEM WITHIN A WORKPLACE CONTEXT Why does this employee have a problem? Why does this happen in the company? How would you deal with this problem? 4. PERSONALIZE THE PROBLEM Have you ever had a problem like this? How did you feel? What did you do? When does this happen to you? 5. DISCUSS/EXPLORE ALTERNATIVES AND CONSEQUENCES What can this employee do? What will happen if he or she does this? What would YOU do about this? What would happen if you did this? 6. WHAT ACTION IS TO BE TAKEN?

What is it about?	How does one use it?
References and Resources: Adapted from: Wallerstein, Nina, *Language and Culture in Conflict: Problem-Posing in the Classroom.* Reading, Mass.: Addison-Wesley, 1983. Adapted from a workshop presented by Liz Minicz from The Center, P.E.P. Project, Des Plaines, Ill. in March, 1994. Auerbach, Elsa R. and Nina Wallerstein, *ESL for Action: Problem-Posing at Work.* Reading, Mass.: Addison-Wesley, 1987. Auerbach, Elsa R., *Making Meaning, Making Change.* McHenry, Ill.: Delta Systems, 1992. Freire, P., *Pedagogy of the Oppressed.* New York: Seabury Press, 1970. Freire, P., *Education for Critical Consciousness.* New York: Continuum, 1981.	**Applicable in these courses and levels:** ESL in the Workplace - Intermediate to Advanced Communication Skills I & II Problem Solving in the Workplace

The Math Standards

What is it about?	*How does one use it?*
The math standards for adult basic education are an adaptation of the national math standards developed by the National Council of Teachers of Mathematics (NCTM). Application of the standards can be done individually or sequentially depending on the focus of instruction. **Standard 1: Math as Problem Solving** Problem solving in today's world is not a simple task. The fast-paced, complex, multidimensional, global workplace requires new skills and strategies to meet changing expectations within a company. The ability to use calculators and other technologies is fast becoming a basic employment requirement. It is no longer enough to be able to add, subtract, multiply, and divide. Now, critical thinking accompanies all forms of computation. Today's employers demand that workers be able to quickly apply basic skills to a variety of ever-changing job situations. Classroom instruction should include approaches to problem solving that allow the learner to: • explore and use multiple strategies for solving math problems; • determine, collect, and analyze appropriate data to solve problems; • and have access and ability to use appropriate problem-solving tools including calculators, computers, and measurement instruments.	To adapt math problem solving in a workplace classroom, word problems that promote critical thinking should accompany all forms of computation. Some possible types of math problems are: • word problems that involve authentic tasks centered in work-specific situations using multiple problem-solving strategies; • word problems that require students to collect and analyze some sort of data to solve problems; • and problems that require use of calculators and measuring tools used in the company. **Workplace Application:** The instructor presents students with a problem-solving scenario such as the following, and instructs them to arrive at the best possible solution to the problem: The company is trying to determine how down time of the machines is effecting production numbers. You know how much product your machine produces in thirty minutes. At the end of an eight hour shift, how can you determine down time of your machine for that shift? What do you need to know in order to solve this problem? Do you need any tools such as a calculator, computer, scales, or measurement instrument to help you arrive at a solution? Is this the most efficient way to solve this problem? If not, what would you suggest?

What is it about?	*How does one use it?*
Standard 2: Math as Communication Math in today's workplace often demands interaction between workers. Given the real workplace demands for math usage, it is important that shared problem solving and communication of mathematical ideas be promoted. Learners must not only learn to discuss how they solve problems, they must also be able to communicate mathematical concepts in written and graphical form. Extensive use of graphs in company and job contexts, as well as in real world contexts, is essential. Classroom instruction should include approaches to problem-solving that allow the learner to: • develop the reading, writing, listening, and speaking skills necessary to communicate mathematically; • discuss mathematical outcomes with others, reflect and clarify his or her own thinking about mathematical outcomes, and make convincing arguments and decisions based on these experiences; • and define work-related or everyday mathematical situations using concrete, pictorial, graphical, or algebraic methods.	To adapt math communication in a workplace classroom, the instructor may approach problems in the following ways: • Promote group discussion of the problem before attempting any solutions. Pose questions such as: What is the question? What information is given? What information is missing? How can the information be found? • Ask students to write down their strategies for solving a problem. • Encourage students to defend their problem-solving strategies and their outcomes in a group setting. • Allow time for reflection and discussion of the problem outcome. **Workplace Application:** The instructor gathers several graphs and charts from various departments or asks for copies of production graphs that are usually posted on a bulletin board in the company. (Industry publications are another good source for graphs and charts.) Next, the instructor asks the students to: • scan a selected graph and verbally identify the title, names of the axes, and the values represented by the labeled points; • individually write answers to several comprehension questions that involve comparing values represented by several labeled points;

What is it about?	How does one use it?
	• draw a conclusion about the information contained in the graph; • and determine if the information contained in the graph is showing a trend or pattern. If it is, what possible prediction about future occurrences can be made? Students come together in a group to discuss their problem-solving strategies and outcomes. They should make convincing arguments about their decisions *(Workplace Math I)*.

What is it about?	How does one use it?
Standard 3: Math as Reasoning Reasoning is a key for determining problem-solving strategies, evaluating alternatives, and analyzing results on the job as well as in real life. Most adult learners are developmentally able to reason abstractly, but many have had little opportunity to practice formalized reasoning while doing math. Genuine respect for and support of each other's ideas is essential for learners to be able to explain and justify their thinking. The learner must be able to understand that ***how*** the problem is solved is as important as the answer. Classroom instruction should include approaches which emphasize mathematical reasoning so that the learner can: • draw logical conclusions from mathematical situations using concrete models and verbal skills to explain his or her thinking; • understand and apply deductive, inductive, and proportional reasoning; • pose his or her own mathematical questions and evaluate them; • and validate his or her own thinking and intuition, feel confident as math problem solvers, and see that math can make sense. Adapted from the Massachusetts Adult Basic Education Math Standards, 1993	To adapt math reasoning in a workplace classroom, the instructor may approach problems in the following ways: • present a problem, situation, or task to a group of students and instruct them to arrive at a solution using any means necessary; • encourage students to explain how they solved problems, whenever possible; • always ask the students if their solution makes sense; • and validate the students' mathematical reasoning and promote math self-confidence at every opportunity. **Workplace Application:** The instructor brings into class several company products, graph paper, and different measuring tools such as a ruler, micrometer, or machinist's rule. If necessary, the students can assist in acquiring the measuring tools. Next, the instructor asks the students to create accurate scale drawings or simplified blueprints of the company products. They may use any means necessary, but it must be detailed and accurate. When they are finished, the students must be able to explain and justify their process and product. They must also question and evaluate other students' processes and products (*Workplace Math II*).

What is it about?	*How does one use it?*
References and Resources: ABE Math Team, *The ABE Math Standards Project (Vols. 1 & 2).* Holyoke, Mass.: Holyoke Community College, 1994. *New Views in Mathematics, Course 1.* Educational Design, Inc. EDI 102. New York, 1994.	**Applicable in theses courses and levels:** Workplace Math I Workplace Math II

CUSTOMIZING COURSES

This curriculum is generalized across six workplaces, and customizing it will involve choosing, adapting or creating goals and objectives that are most appropriate for a specific workplace. In order for the instructor to choose the goals and objectives that are most appropriate, he or she must first learn about the workplace. This can begin with a plant tour to observe employees on the job and interviews with employees and supervisors, as well as discussions with the grant staff.

Instructors can begin customizing their courses as soon as they receive the curriculum, go on a tour of the workplace, and get basic information about the students. Customization continues at the beginning of the course, when the teacher first meets and talks with the students, and should be an ongoing activity throughout the course. At the end of the course, the instructor has a chance to reflect and record suggestions for customization that might be useful for another instructor. The following steps may be used in customizing a course.

Before the class begins

1. Read curriculum	• Highlight course goals and objectives for possible adaptation keeping in mind that adding, deleting, or rewriting may be necessary based on what is learned about employer and employee needs. Check other courses for ideas.
2. Take a workplace tour	• Ask questions and take notes, focusing on choice, adaptation, and creation of learning objectives.
3. Gather authentic materials and resources	• Review materials for possible use in instruction. • Make a list of technical vocabulary.
4. Select appropriate course goals and objectives	• Select, adapt, or rewrite course goals and objectives to meet the demonstrated and observed needs of the employer and employees.
5. Confer with the grant staff regarding plans to customize course goals and objectives	• Discuss possible goals and objectives with grant staff and arrive at a common consensus for course content. Ask questions and discuss ideas and concerns with the grant staff.
6. Plan a way to assess student needs during the course of the class.	• Refer to the section, *Student Assessment*, for possible questionnaires to use at the beginning, during, and at the end of class. This process allows the instructor to continually adapt the course content to meet the needs of the students.

During the class

1. Find out what students already know, what they want to know and what the employer wants them to know.	• Brainstorm with entire class or small groups for possible topics. Include the list of goals and objectives that have been tentatively selected. Discuss and prioritize topics according to the students' needs. • Personal interviews with students may be helpful in assessing their needs. • Interviews with the Human Resource people and with the grant staff will help in determining employer expectations. • Make sure the contact person at the company is given a current copy of the selected goals and objectives for the class.
2. Be aware of and respond to any revised expectation from the company or the grant staff which may be expressed throughout the course.	• For example, if production demands increase during the course, students may be working more hours or with a new, more demanding schedule. This may be reason to change the classroom presentation to make it even more active and participatory.
3. Adjust course content as needed throughout the course.	• The teacher/learner relationship, the ambiance in the classroom, worksite visits, and keen observations will allow meaningful topics to come to light, as well as adjustments in instructional strategies to help students' acquire needed skills.

After the class is over

1. Record adjustments to the original curriculum and note successes or failures. Reflect on the process and record thoughts for course evaluation.	• Reflect on the successes as well as the failures throughout the course. Include comments on the process, selection of goals and objectives, activities, instructional methods, authentic materials, texts, student interactions, and evaluation tools.
2. Make suggestions for improvements in the curriculum and course content.	• Record suggestions and give to the grant staff at the end of the course.

Using the Participatory Approach to Customize Courses

The participatory approach offers teachers of all courses a variety of useful techniques for finding out what students are interested in and what problems they encounter in the workplace.

The participatory approach is about students having the autonomy to influence course content and presentation. If students are to find empowerment through education, then they should have control over their own learning. The instructor is a facilitator, not the font of all knowledge, and students' ideas and opinions are important, and are incorporated into the course. The instructor is also a real person with opinions and real feelings, and he or she has the task of finding ways to express his or her own ideas, while being aware of the societal power that instructors have in most classrooms. A goal of the participatory approach is to break down the barrier between instructor and student, and to validate the students' opinions. Thus, the students' self-esteem is bound to rise.

Basically, the participatory approach involves using a series of questions about a situation that move from the concrete, to the personal, to the societal. This questioning technique, outlined in the Instructional Methods and Approaches section, under Problem-Posing, is useful in customization. Instructors can base the questioning on workplace objects, photographs, or dialogues that reflect issues in the company. All of these items can be used to gather information about what is important to the students and what they want to learn.

AUTHENTIC MATERIAL FOR WORKPLACE INSTRUCTION

The most effective way to conduct a workplace class is to incorporate authentic materials used on the job in classroom instruction. The workplace itself is the single best place to locate such resources. In this section, several examples of authentic materials and possible content which could be used in classroom instruction are given.

Authentic materials include the following:	***Material content may include the following:***
Notices on company bulletin boards	• Safety notices • Accident reports • Employee incentives • Production news or updates • Information from human resources • Job postings • Training opportunities • Company events • Employee health and well-being tips • Advertisements
General communication memos on the line	• Description of new procedures • Change in scheduling • Requests for tools or supplies • Details of a machine breakdown • Details of a production problem • Instructions for new shift • Request for vacation or time off • Information from human resources • Information from supervisor
Signs affixed to machines, tools, equipment, or signs visible on the line	• Mandatory company rules • Dangerous situations • Emergency procedures • Machine shutdown procedures • Labeling of machine parts • Instructions on how to use machines or equipment • Safety precautions and requirements • Conversion tables and charts

Authentic materials include the following:	***Material content may include the following:***
Trade magazines and company publications often found in the reception area of the company	• Industry news • New product information • Customer comments and feedback • Practices of successful companies in the industry • Graphs, charts, and diagrams • Numerical data on industry-wide production and other related areas • Yearly report to stockholders • Industry-specific informational articles and advertisements • Company newsletter
Work orders on the production line	• Labels to affix to order • Computer printout of location of materials in warehouse • Computer printouts • Start up sheets • Customer information • Order specifications with gauge, weight, size, and/or tolerance • Sample testing information • Quality control information • Packing and shipping information • Whole numbers, fractions, decimals, alphanumeric codes
Forms and documents	• Employee benefits forms • Application for new position in company • Pay stubs • Purchase orders and order forms • Accident report forms • Time sheets • Inventory forms • Billing forms and material receipts • Invoices • Work schedule • Forms W-4 • Production reports

Authentic materials include the following:	***Material content may include the following:***
Company charts and graphs	• Line, pie, and or bar graphs on such topics as production, accident rate, waste, on-time delivery, market share, etc. • Whole numbers and percents • Important company or personnel data • Product blueprints may be used, but instructor should check for complexity and simplify if necessary
Employee handbooks	• Company mission statement • Company and company products information • Equal Employment Opportunities • Pay program • Benefit program • Employee work schedule • Training and development opportunities • Employee conduct on the job • Performance appraisals • Plant security • Employee newsletter • Employee activities • Work related accidents • Management philosophy

This chart offers many options for the classroom instructor. Each company will differ in the design of the materials and the extent of the content. A pre-course contact is the educational provider who may be a good source for material. Often the best way to collect authentic material is to take a field trip out on the floor with a student or supervisor. Another method is to ask students to bring in material for instructional use. Once the instructor acquires the material, he or she may review the documents; ask a company resource person for clarification, if needed; develop pre-reading questions; plan activities such as job simulation, question/answer exercises, strip stories, math calculations; and write post-reading questions including literal, inferential, and personal application questions.

MULTILEVEL CLASSES

Although all classes are multilevel, workplace classes tend to be more multilevel than the average adult education class. This is often caused by production needs in the workplace. For example, two employees who are pre-tested at the same level may not be able to participate in the same class because they work on the same machine and someone must operate that machine at all times. Because of these very real demands, students who should be in a particular class for educational reasons, cannot, for production reasons be in the class they need. Class sizes in workplace settings tend to be smaller than adult education classes, resulting in a variety of skill levels.

In this section, instructors will find a list of many factors that contribute to multilevel classes. There are also general suggestions about how workplace instructors can plan effectively for multilevel classes along with possible activities that would be appropriate in multilevel classes.

Variations in a Multilevel Class

No multilevel class is the same. There are so many factors that contribute students' levels that the suggestions below constitute a very preliminary list.

Students will come to class with different levels of:

- formal education
- learning styles
- first-language literacy
- ease in using the alphabet as script
- comfort with classmates
- familiarity with U.S. cultures
- learning speeds
- learning motivation
- self-esteem
- aptitude
- energy
- age
- proficiency in listening, speaking, readings, and writing skills in English

Effective Planning for Multilevel Classes

When instructors see that their class lists include learners with widely varying test scores, they can be sure that they will be dealing with the issues of a multilevel class. The first thing they need to know is that the teacher in a multilevel class cannot be everything to everyone. Instructors with multilevel classes need to assess students strengths and their challenges, and they need to actively involve students in instruction, to optimize learning, and to make the class

run smoothly. The successful teacher in a multilevel class acts mostly as a facilitator, guiding students as they work together and share their knowledge with each other. What follows are lists of things that instructors can do as they plan for a multilevel class.

Before the class begins, instructors can:

- review students pre-test scores and put them in the context of that particular test as well as the goals of the course to be taught;
- plan to assess each learner's skill level at the beginning of the class, using a variety of non-threatening techniques, such as informal interviews, teacher observation of small-group conversations, questionnaires, and so on;
- plan to brainstorm lists of information about students that could be used as alternate ways to group them, so that there is a break from grouping by ability.

As the class progresses, instructors can:

- organize classes so that there are whole group activities at the beginning and at the end of each class;
- base multilevel lessons on a single theme, and create activities that address the needs of each group at different levels;
- alternate instruction between whole group, small groups or pairs of equal ability, small groups or pairs of mixed ability, and individual work.

The following chart outlines some possible activities that instructors might employ in a multilevel workplace classroom.

Whole class activities

Language Experience Approach	• Instructors solicit contributions from the lowest-level student first. Higher-level students are unlikely to be challenged reading the sentences that the lower-level students are capable of forming, but their attention can be maintained if they are warned that later they will be asked to correct grammar, spelling, recorded mistakes, or to join simple sentences into complex sentences.
Photo stories	• Instructors create caption dialogues on workplace photos. Students of all levels can follow these photo stories if they use clues contained in the photos to help them figure out the meaning of the dialogue. Listening to stronger readers gives the poorer readers a chance to hear the words before reading it themselves.

Reading passage	• Instructors can select a piece of continuous prose in any workplace document, particularly the employee handbook, company policies, safety manuals, training manuals, or company memos. All these forms usually have the advantage of form and layout that help even beginning readers make predictions about the meaning of the text. Variation for different level students can include comprehension questions of different degrees of difficulty, completing a missing word in a sentence using context clues, copying key sentences, or responding to the text, e.g., writing an accident report or a memo reporting a machine malfunction.

Same-level groups or pair activities

Problem solving	• Instructors present students with information that gives them a number of choices. The students are asked to arrive at a conclusion individually first, then to discuss it with their group or partner and reach a mutual decision. In the workplace this information could involve payroll problems, absentee problems, safety problems, or production problems.
Sequencing	• Written or illustrated material from workplace manuals or signs visible on the line that breaks down information into a series of parts works very well with small groups or pairs. Individual parts are given to each member, who must share this information with each other to reconstruct the original. Activities can focus on written or oral skills.
Process writing	• Students work in small writing groups or with a partner. They may focus on describing a situation or problem at work, writing a memo, documenting a process, writing a job description or any other real-life writing task. When the student completes the first draft, he or she asks for a critique from one or more students in the group. Beginners will probably focus on word-choice and simple sentences. More advanced students will want feedback on coherence, more complex sentences, correct punctuation, and spelling. The student's writing will be made public when he or she is pleased with it.

Mixed-level groups or pair activities

Jigsaw groupings	• This mixed-level grouping ensures that all students have a critical contribution to the activity. Students are placed initially in equal ability groups. Each group is given some information unknown to the rest of the groups. They are then rearranged into new mixed-level groups, each new group with one student from the original group. Next, the students pool their knowledge to attempt some task that can only be completed if all students contribute information. A workplace occurrence or problem from the point of view of hourly employees, supervisors, plant managers, and/or management offer different input that can be adjusted to the different levels of the students. They may, for example, read three or four different accounts of the same event given by people who were involved. A workplace accident might present the following scenarios with varying degrees of difficulty: 1) the employee's description of the accident, 2) the safety investigator's report, 3) the supervisor's description of the accident, and 4) the union steward's response to the accident. Each equal ability group responds to questions about their scenario. Finally, the mixed-level group shares all the information to determine the possible causes of the accident and to offer possible preventive measures.
Role plays	• In a workplace ESL class, this activity gives the students the opportunity to try out the language that they may need to cope with situations and interactions in the workplace. Such events normally involve interactions with a native speaker; therefore, a more advanced student can take on the role of the native speaker and be responsible for the overall progress of the conversation. The lower-level students' comprehension is challenged and they are given practice in asking for repetition and paraphrasing.
Interviews Adapted from: Bell, Jill. *Teaching Multilevel Classes in ESL*. San Diego, Calif.: Dominie Press, Inc., 1991.	• Interviewing and recording the answers is a useful activity in a communication skills, problem solving, or ESL workplace class. In a mixed ability group or pair, the weaker student is the interviewee. The stronger student must phrase the questions so that the weaker student can understand and respond appropriately. This could involve describing one's job, a machine procedure, a workplace occurrence, or qualifications for a new job posting in the company.

CROSS-CULTURAL COMMUNICATION

Cultural differences are not only at issue in the ESL classroom. Culture matters in math, communication skills, and problem solving, as well. Whenever people of diverse backgrounds are working together, cultural misunderstandings are inevitable.

What is the role of culture in workplace classes? In a math class, it may mean asking students how they learned to set up a long division problem in their native country. In a problem solving class, it may mean considering cultural values or differences in the solution to a problem. In communication skills classes, it may mean incorporating cross-cultural communication into the course content. However, the subject of culture is especially at home in the ESL classroom. In the sections that follow, the workplace ESL instructor will find some ideas about how to address this important topic in the classroom. Teachers of other courses will find this information helpful, as well.

Cross-cultural Communication in the Workplace

The cross-cultural communication problems that might arise in the workplace are many. Some areas in which problems often arise include:

- supervisor/employee relationship
- employee/supervisor roles and expectations
- preferred ways to address problems
- preferred ways to make decisions
- methods for feedback or performance reviews
- ways to assign job tasks and responsibilities
- ways to motivate employees

The more that instructors can see themselves as ethnographers in the workplace, the more information they will have about how to address the issues mentioned above. The more information that teacher-ethnographers can gather about their workplace surroundings, especially the ways in which people communicate, the more effective their teaching will be.

It is helpful for an instructor to be aware that what may motivate a U.S.-born employee may not motivate a Mexican-born employee. The instructor's task is to find out what motivates each student, and this is commonly done through direct questioning as well as observation. Because much of our cultural knowledge is unconscious, we are seldom able to articulate the most crucial parts of what we know. For that reason, the teacher-ethnographer's most valuable tool is participant observation. By being involved in the students' work world, an instructor can aspire to having an insider's view of things. The goal is for the instructor to try to see the world from the student's point of view, as much as possible. This will give the teacher invaluable information about what students want and need to learn, and how they can best learn it.

Cultural values are a fairly unconscious area of behavior. For example, the general communication style in the U.S. tends to be direct, whereas in other cultures, the style is more often indirect. It is through contact with another set of values, that one's own values begin to emerge. The following list outlines some areas in which value conflicts commonly occur. Teacher-ethnographers may observe behavior that falls into these categories, and the more they can make the relevant issues explicit, the more information students will have as they navigate a new culture. These cultural values include:

- competition versus cooperation in a group
- direct versus indirect communication styles
- favoritism based on cultural heritage
- preference for traditional methods versus preference for new methods
- charisma versus expertise
- the family as the main source of personal identity versus one's work as the main source of personal identity
- attitudes toward authority
- the role of class or social standing

Using Critical Incidents in the Workplace as a Cross-Cultural Communication Problem Solving Technique

When employees and instructors with different cultural backgrounds and behaviors work together problems and misunderstandings can occur. There may not be widespread awareness of the role of culture in these situations, or there may be a lack of interpersonal skills to deal with these tensions and conflicts. One technique that is commonly used to build cross-cultural skills in more advanced ESL or communication skills classes is called critical incidents. It allows students to look at examples of cross-cultural miscommunication and develop the analytical skills to analyze and interpret the problem. Critical incidents are examples of problems or situations that may elicit cultural misunderstandings. They are written for the purpose of analysis, have many possible solutions, and may invoke lively discussions.

There are many benefits in using critical incidents as a problem-solving technique in the workplace classroom. These benefits allow students to:

- be exposed to a variety of ways to view cross-cultural communication problems and solutions;
- have the opportunity to discover what hinders their own communication with co-workers from different cultures;
- learn to identify cultural, social, and political aspects of the situations; and
- build critical thinking skills.

The following segment is a guideline for incorporating cross-cultural critical incidents in a classroom activity. The goals of this activity are to help students and instructors become aware of their own cultural values, to expand cultural awareness, and to generate different ways to resolve cross-cultural communication problems.

Guidelines for Cross-cultural Critical Incidents Activity

Step 1: Read the critical incident aloud or ask a more advanced-level student to read it. Ask such questions as: Who is involved in this incident? What is the problem or situation?

Step 2: List the cross-cultural issues that the students see happening in the critical incident. Possible issues are listed in the chart below to guide the students in this discovery.

Step 3: Identify what is happening in the critical incident from the points of view of the individuals involved. What are the value differences?

Step 4: Decide what the individuals could do to resolve the conflict. Why would they make that decision?

Step 5: Extend the discussion to similar situations in the student's workplace.

Critical Incidents	Possible Cross-cultural Issues
Employees from different language backgrounds are assigned to work on the same machine. One employee who is a native speaker of English complains to his supervisor that he can't understand his co-workers' English.	• language barriers • establishing rapport • group affiliation • competition vs. cooperation • stereotyping
One employee is frequently late for work and often delays the start-up of the day's production. The supervisor counsels the employee about this situation, but the employee is very quiet and will not look at the supervisor as he speaks.	• body language • attitude toward authority • definition of punctuality • supervisor's cultural awareness
A small group of employees decide to complain to their supervisor because some international employees are getting special training, and exceptions are being made when their work does not meet quality standards.	• 'out group' perception of 'in group' • jealousy • equal treatment vs. differential treatment

Critical Incidents	Possible Cross-cultural Issues
A new supervisor is annoyed when several employees request a vacation day to celebrate a holiday from their native country.	• recognition of cultural diversity • role of family, cultural, and/or religious obligations • expectations for traditional U.S. holidays only
The plant manager makes a comment to a supervisor that there are very few minority employees who speak up or show any obvious interest at plant meetings.	• body language • embarrassment about language skills • communication styles • stereotyping • attitude toward authority • role of class or social standing
A new company trainer has been hired to help build team skills in the workplace. She notices that as soon as the employees break for lunch they separate into their cultural groups to eat. She doesn't know if this fact will interfere with her training goals.	• language barrier • group affiliation

The Value of Cultural Diversity in the Workplace Classroom

Becoming aware of cultural differences and of one's own culturally-based attitudes and behaviors takes a long time. Most people who achieve this goal can think back to various kinds of experiences which shaped their openness to other cultures. There are many opportunities in basic-skills classes to practice cross-cultural communications. People change slowly and the classroom is a good place to begin.

Cross-cultural Communication Guidelines for Workplace Instructors

Keep the following tips in mind when practicing cross-culture communications in the classroom.

- Work at understanding one's own cultural preferences.
- Work at understanding other cultures including the fundamentals of their language.
- Don't assume the other culture is similar to your own. Beware of jokes. They may not communicate well.
- Speak at a comfortable pace for the learners. Use visuals and print to support what is said. Don't use slang.

- Break information into small chunks and present one chunk at a time.
- Repeat and reinforce information continually. Ask for information back from the learners to confirm their understanding.
- Respect differences. Listen, observe, ask questions. Ask how something is done in the learner's culture. Let them be the teacher.
- Develop empathy. See a situation from different cultures' perspectives.
- Respect the appropriate level of formality in the other culture.
- Pay particular attention to non-verbal behavior.
- Acknowledge mistakes. Welcome questioning. Don't become defensive, withdrawn, or hostile.

Adapted from: Brake, Terence and Danielle Walker, Doing Business Internationally - The Workbook to Cross-Cultural Success. Princeton Training Press. N. J., 1994-95, pg. 18-19

TRANSFER OF SKILLS TO THE WORKPLACE AND BEYOND

A key expectation of basic skills training is for students to be able to use their new skills back on the job. Beyond that, students should also be able to transfer their new skills to situations in the home and in the community. This section of *The Guide* addresses ways in which instructors can encourage and promote the students' transfer of learning to the workplace and beyond.

Transfer of learning is a term that describes using newly learned skills, knowledge, or attitudes in different situations outside the classroom. As the focus in this curriculum is on basic-skills enhancement in the workplace, the students' transfer of learning means first using their new skills at work. This is in the employer's and employee's best interest, and yet, transfer may be a new concept to both employer and employee. Transfer of learning is more likely to occur when instructors actively promote it in the classroom and employers acknowledge it on the job. Documenting transfer will provide the student, the instructor, and the program staff with a record of student efforts. The students also benefit from seeing their experiences documented. It gives them benchmarks in regards to their skill enhancement in the most useful of contexts: their jobs.

Once the instructor begins promoting transfer of learning in the classroom, it doesn't take long for the students to see the value in transferring skills to the workplace and the community. For example, a student who has learned to write a clear, concise memo in *Communication Skills II* will write a memo to his or her supervisor. That same student may use those writing skills to write a note to his or her child's teacher at school. The student gains self-confidence with every effort in transferring skills to situations beyond the classroom.

When applying transfer of learning activities in the classroom, the instructor should promote discussion and sharing of ideas and experiences among the students. This is a crucial element in transfer activities. When students say things aloud to others, there is a greater likelihood that they will actually do them. This sharing also helps the students see that they have more transfer possibilities than they had thought. When students are able to articulate what skills they will practice on the job and at home, their self-confidence increases. Students and employers will be pleased with the results of the students' efforts to use their new skills on the job.

To assist instructors in implementing transfer of learning into classroom instruction, the activity on the following page gives a step-by-step description of the process.

Learner Transfer Activity

In class: Pre-transfer

First Step

- Ask learners to think about a skill they are learning that can be used in the workplace. Give them some ideas to start with, such as the objectives, or some skills that have been worked on in class.

Second Step

- Present an example of transfer, such as the following:

  A learner has been practicing writing complete sentences and short notes in class. He is learning this skill in class in order to write a note stating the reason for a machine slowdown or breakdown. Transfer occurs when a note is written in the workplace. This extends beyond the workplace to the learner's personal life when he or she is able to write a note to the landlord requesting a needed home repair.

Third Step

- Have learners brainstorm a list of skills that can be transferred to the workplace.
- From the list, have learners choose one skill that they think they can transfer to their jobs and ask them to write it on an index card. If they cannot write it down, have them to tell you, and you write it down. (See model of transfer card on the following page)

Fourth Step

- Ask learners to brainstorm a list of things that might make it difficult for them to use this skill on the job. Difficulties might be: production is going well and there is no need for a note, or a co-worker may pass the information on orally to the supervisor.
- Brainstorm possible solution or alternatives.

Fifth Step

- Explain that there are different measures of success in the transfer process, and encourage learners to consider the transfer successful if they try to **USE** the skill, not just if they get the desired results.

Sixth Step

- Tell learners to write down how the skill was transferred on the back of the index card before they come to class the following week (see model of a transfer card on the following page).

In class: Post transfer

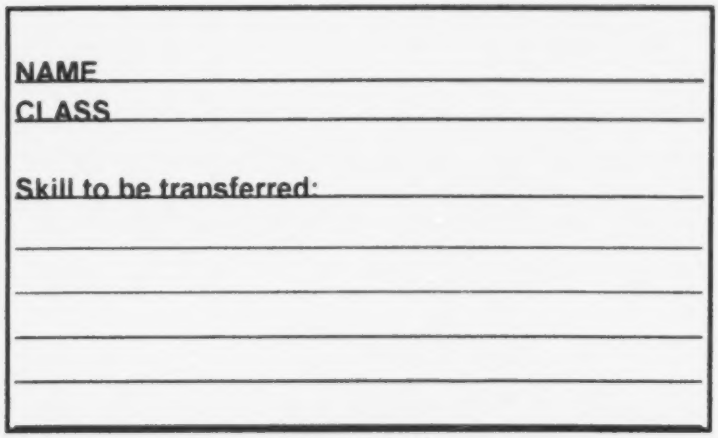
Seventh Step

- Have learners share what they have written on their cards, discussing what did and did not work, and why.

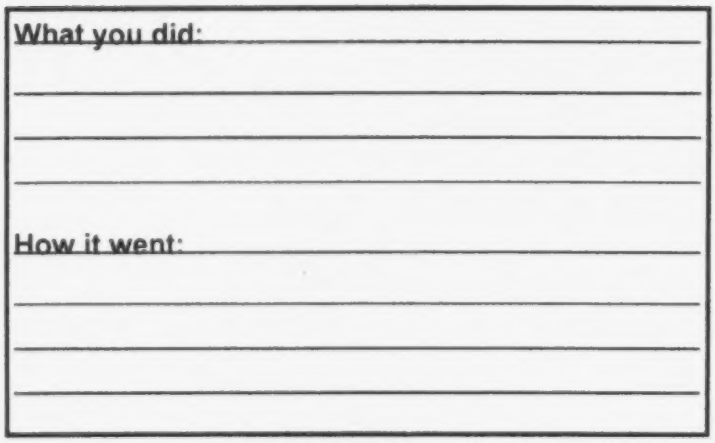
Eighth Step

- Record learners' comments and assimilate appropriate information into the course.
- Incorporate transfer activities into regular lesson plans (every third class, or so). The goal is for learners to think about transfer so frequently that it becomes internalized.
- Submit transfer cards to the grant staff and provide input on the effectiveness of the process

Model of a Transfer Card



(Front view)



(Back view)

Monitoring Transfer of Learning

This is integral to the success of the whole transfer plan. In addition to the activity above, some other ways to monitor student transfer are:

- to check in periodically with supervisors in order to get feedback on students' use of new skills on the job. Students may be improving in areas they are not aware of and input from supervisors may be encouraging;
- to facilitate discussions between students that describe transfer experiences and how barriers have been overcome;
- to record and display anecdotes about students' transfer experiences.

STUDENT ASSESSMENT

Once students' goals and objectives have been identified and selected, the question arises as to how the achievement of these goals will be measured. To answer this question, a common understanding of the term assessment must be established. Assessment is the process of measuring students' mastery of the course goals or objectives. The course-based assessments are quantitative or measurable and are the most important aspect of the assessment process. These assessments are one of the workplace instructor's main responsibilities. Each course goal has a measurable outcome around which assessment can be designed. The instructor creates the assessment tool to measure each goal, using such methods as demonstration, checklists, writing profiles, and reading profiles. Examples of assessment tools used various workplace classes are located in *The Appendix*.

While the learning of many important skills can be measured, there is much of value that cannot be measured quantitatively. For that reason, instructors will also gather qualitative information so that a complete representation of student progress can be recorded. Qualitative assessments include such methods as student self-assessments and anecdotes from and about the students and the course. Qualitative measures are an important way of informally assessing students and of providing information that can be useful in adapting the curriculum for future use. This section will focus on different methods of assessment an instructor may select or adapt. The assessment instruments created should be discussed with the grant staff before implementation.

Course-based Assessments

These suggestions for assessment are designed to measure the learner's ability to achieve the selected goals of the course. The outcome of each course goal specifies what the learner must demonstrate an ability to do with eighty percent mastery. These outcomes describe learner behavior that can be observed and measured. During the course, assessments should be administered during three different periods, in order to:

- identify task and skill areas in which the learners need work (at the beginning);
- assess effectiveness of instruction for the students, the instructor, and for grant-reporting purposes (throughout the course); and to
- demonstrate learner-mastery of course goals (at the end of the course).

The instructor creates assessment tools based on course goals, learning objectives for the goals, and actual materials used for instruction. Each goal outcome clearly defines what is to be measured. The following chart offers some examples of course-based assessments and goal outcomes from the various courses.

Course-based Assessments	Examples of Goal Outcomes
• *Demonstrations* require the student to show mastery of an outcome by performing an action in class.	*Math* - Measure several products or objects using an appropriate measuring device; record and state the measurement.
• *Checklists* allow the instructor to mark which objectives the students have mastered.	*Communication Skills* - Demonstrate appropriate discussion techniques in a team meeting scenario using this goal's learning objectives as a checklist.
• *Pencil and paper tests* require the students to be evaluated on the basis of written work.	*ESL* - Fill in required information on a simple workplace form.
• *Lists* require the students to produce an item-by-item written entry specified by a goal outcome.	*Problem Solving* - List possible causes for a workplace problem and determine the primary cause.
• *Group Team presentations* require the students to display the process of acquiring and mastering the goal's objectives in front of the instructor or other people.	*Problem Solving* - Write and present an action plan to implement the solution to a workplace problem.
• *Writing profiles* require the students to produce a writing sample that reflects the course goal objectives.	*Communication Skills* - Write a memo, using proper format, about a workplace occurrence or a request.
• *Reading profiles* require the students to read and then produce a response that demonstrates comprehension.	*ESL* - Demonstrate through speaking or writing an understanding of a set of written work instructions.

Student Self-Assessment

Students' own assessment of their learning is another critical component of the entire evaluation process. Students know better than anyone else how confident they feel about their progress in the course and how they have transferred knowledge to their jobs and lives outside of work. Students with virtually no oral skills in English may need to be assessed by the instructor, or with the help of bilingual classmates or native-language surveys. For other students, self-assessment can work something like this:

- the instructor creates a chart, checklist, or narrative writing format based on student level and course goals;

- the self-assessment may by used at the beginning of the course to identify student needs, in the middle for feedback, and or at the end for achievement;
- responses to statements or questions may be oral or written; and
- students may respond to statements or questions individually, with peers, or to an instructor.

The format of the self-assessment is created by the instructor, and the content depends on the course. The following checklist is an example of a self-assessment that can be implemented in an ESL class. It may be used in the beginning of the course to identify student needs and at the end as a basis to review student progress. This format may be used in other courses and would reflect the goals for that course. For example, if the course is Workplace Math I, the statements used may be: I can read measurements on a ruler, I can convert fractions to decimals, I can read company charts, and so on. For an ESL course, it might be:

	well	in most situations	a little	not at all
I can understand English at work.				
I can speak English at work.				
I can write these in English:				
Notes to co-workers or supervisors				
Memos				
Job Procedure				
Reports to supervisors				
I can read these in English:				
Work orders				
Safety procedures				
Company policies/procedures				
Employee handbook				
I speak up at meetings.				

A midterm student self-assessment often provides the instructor with insights on student progress, student frustrations, and teaching effectiveness. This in turn allows the instructor to make necessary adjustments. The following suggestions may be adapted to any course:

1. Some (specific skill) I have learned recently is...
2. I feel good about using (specific skill) I have learned when...
3. Some (specific skills) I do well are...
4. I feel I could use more practice in...
5. Some frustrations I have experienced in class are...
6. Some (specific skill) frustrations I have experienced on the job are...

An end-of-course student self-assessment provides a basis for students to reflect on their progress. The following suggestions may be adapted to any course:

1. How are your (specific) skills changing?
2. How has your learning affected your job?
3. How has your learning affected your life outside the job?
4. What do you still find difficult to do?
5. What are your new strengths?
6. What do you need to learn next?

Class Evaluations

These evaluations can provide student feedback about the class at the mid-point or at the end of a course. The form should be anonymous and as simple as possible. Students should have the option of doing these in either English or their first language. Bilingual forms can be developed with help of the grant staff. Some possible questions include:

- How did this class meet your needs?
- How did this class not meet your needs?
- Was the class to easy or difficult for you?
- What could improve the class?
- What activities helped you learn best?
- What activities did not help you learn?
- What materials used in class helped you learn best?
- What materials used in class did not help you learn?

Anecdotal Information

Instructors can informally assess what is happening in the classroom by simply writing down comments or anecdotes as often as possible, preferably at the end of class. For example, the instructor could mention a student who contributed to group discussion for the first time, or

describe how a student applied his or her new skills on the job. This type of qualitative assessment is done in an open-ended, descriptive way and is recorded without a predetermined goal. Instructors may want to arrange their lesson plans with a wide margin or area set aside solely for anecdotal comments. The purpose of this informal documentation is to help instructors gather information for assessment of changes in self-confidence, group participation, ability to take on new roles (leadership), ability to help and support peers, and basic skills. Anecdotal information is also helpful for future curriculum adaptation.

The Courses

EXPLANATION OF COURSE OUTLINE FORMAT

This format is designed as an outline for each workplace course. The course outline is the instructor's general guide to the course, and offers a starting point from which the instructor may begin to customize for a specific workplace. On the first few days of class, the instructor can determine, along with the students, which goals and objectives are most appropriate to their learning needs. Using the course outline throughout the course, the instructor will continue to make adjustments and adaptations as students' needs become more apparent.

The course outlines for each basic-skill area are preceded by an overview of the course content with a list of the course goals. The following information identifies and describes each part of the course outline.

Learning Objectives	Workplace Contexts	Basic Skills	Possible Activities	Outcome
❶ Goal #1:				
❷	❸	❹	❺	❻

❶ GOALS The goals in each course represent the expectations for the students' skill development. They are ordered in terms of difficulty of the skills involved. The goals are generalized across six workplaces and should be customized to a specific workplace with input from the students and the employer.

❷ LEARNING OBJECTIVES The learning objectives are measurable steps that build toward the completion of the stated goal. They are sequenced in terms of complexity and progressively build the students' skills. Critical thinking skills are integrated into many of the learning objectives. The objectives should be customized to a specific workplace with input from the students and the employer.

❹WORKPLACE CONTEXTS The list of workplace contexts provides the instructor with possible materials, situations, interactions, issues, questions, dilemmas, controversies, or decisions in the workplace in which the learning objectives or skills that relate to them can be practiced.

❺ POSSIBLE ACTIVITIES The possible classroom activities relate to a learning objective or a cluster of learning objectives. They can be used as is or expanded upon to suit the students' needs. Each activity illustrates a specific method or approach, but instructors may rewrite the activity to suit other methods or approaches. They may also use the activity as a springboard to create other activities.

❶ BASIC SKILLS The list of basic skills relate to the skills that are involved in achieving the learning objectives. The list should be customized to each workplace with input from the students and the employer.

❻ OUTCOME The outcome is a description of a measurable assessment of student performance.

WORKPLACE MATH I and II

These courses are designed sequentially to emphasize the basic math skills needed in the workplace. *Workplace Math I* stresses basic arithmetic calculations and mathematical terminology involving whole numbers, fractions, and decimals which are used on the job. Basic measurement principles, as well as measurement readings and conversions, are also emphasized. The course culminates with the interpretation of charts, graphs, tables, and/or diagrams used in the company. *Workplace Math II* begins with a compact review of *Workplace Math I* (the first goal), to insure a solid foundation of prerequisite knowledge. The course then goes on to the structure, use, and application of different measurement systems used in the company, focusing on precision and accuracy. Simple formulas using ratio, proportion, and percentage as they are used in the production process are also featured. Finally, the merging of geometric principles, basic algebra, and measurements to calculate weights, perimeter, and area of company products completes this course. In addition to the skill-based goals of both courses, the instructor should emphasize the concepts of knowing which operation to use in solving a problem, estimating an answer, and determining if an answer makes sense. Use of a calculator, if it is employed on the job, may be woven into both courses. Although goals may be selected from the two courses to individualize a course of study, the instructor should be careful to insure that the student or students possess the prerequisite math skills needed to do the work. The chart below displays the goals in each course. For a more detailed description of the courses with the learning objectives for each goal, workplace contexts, basic skills, and measurable outcomes, see the course outlines which follow.

COURSE GOALS

WORKPLACE MATH I	*WORKPLACE MATH II*
• Read, match, count, and compare whole numbers on product and work order	• Perform arithmetic with fractional and/or decimal measurement numbers used in the company
• Add, subtract, and multiply whole numbers to determine quantity of company product	• Convert from U.S. standard to metric measure and vice versa using company product specifications
• Add, subtract, multiply, and divide whole numbers to fill out a time card	• Read, convert, and record direct measurement where the numerical reading is displayed on some sort of scale
• Add and subtract fractions or decimals on specifications or drawings to calculate upper and lower control limits and determine if a product is within those limits	• Solve problems involving ratio and proportion to determine machine downtime and scale drawings
• Read and record fractional or decimal measurement of a product using an appropriate measuring tool	• Determine percentage of any of the following workplace situations: waste, downtime, shrinkage, efficiency of a process or a machine, percent increase or decrease of a company process
• Convert fractional measurement of product to decimal equivalent and vice versa	• Using the relationship of geometric principles, basic algebra, and measurements, determine perimeter, area, and weight of company products
• Read and interpret company charts, graphs, tables, and/or diagrams	

WORKPLACE MATH I

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Goal #1: **Read, match, count, and compare whole numbers on product and work order.**				
Identify and read whole numbers on a work order. Compare whole numbers on work orders. Identify and correct transposed numbers.	Work orders Inventory sheets	Read whole numbers Compare whole numbers	Give students an inventory sheet and several work orders. Ask them to match work orders with available product. As a group discuss how the transposition of numbers occurs and how to prevent it.	Read and compare whole numbers on a work order to product.
Goal #2: **Add, subtract, and multiply whole numbers to determine quantity of company product.**				
Predict the approximate number to any calculation before actually performing it. Add and subtract whole numbers to determine the net weight of product to be shipped. Multiply whole numbers to determine the amount of product to be shipped.	Work orders Shipping and receiving	Estimation Add and subtract whole numbers Multiply whole numbers.	In pairs, have students estimate and record the answers to several whole number problems. Next, have students calculate the correct answer. Compare answers and discuss the importance of estimating answers in a technical trade. Use several different job scenarios in which an employee would have to report the quantity of product ready for shipping.	Using number of skids, and number of product per skid, use arithmetic to determine the amount of product.
Goal #3: **Add, subtract, multiply, and divide whole numbers in order to fill out a time card.**				
Add and subtract whole numbers to determine number of hours worked in a day.	Time cards Time clock, if used	Add and subtract whole numbers	Create several time cards in which some are incorrectly filled out. Have students select the correct ones and correct the errors on the incorrect time cards.	Complete a time card by recording

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Multiply whole numbers to determine the amount paid for a week's work, vacation time, and/or sick leave accrued. Divide whole numbers in order to determine the hourly wage.	Paychecks	Multiply and divide whole numbers	Use military time to fill out several time cards. Company military time to regular time. Note to the instructor: Be sure to find out how the company tracks the employee's time and use it in examples.	hours worked per day and per week.
Goal #4: Add and subtract fractions or decimals on specifications or drawings in order to calculate upper and lower control limits (tolerance) and determine if product is within those limits.				
Define tolerance. Add and subtract fractional or decimal tolerance attached to a measurement in order to determine upper and lower limits of size. Sequence fractional or decimal measurement between upper and lower limits. Determine if a product measurement lies within tolerance.	Specifications Quality control Blueprints	Understand technical terms Add and subtract fractions and/or decimals Sequence measurement Evaluate measurement results	Create several simplified blueprints or drawings of product with measurement dimensions (e.g., 1.746 +/- .005). Ask students to calculate upper and lower control limits. Give several examples of product measurement and have the students determine if these measurements fall within tolerance. From a quality control point of view, discuss the importance of tolerance and precision in the manufacturing industry.	Calculate tolerance on a drawing and determine if a given measure-ment is within those limits.
Goal #5: Read and record fractional or decimal measurement of product using an appropriate measuring tool.				
Identify the graduations on scale of each measurement tool. Determine the size of the smallest division in one interval on a measurement tool.	Tape measure Machinist's rule Micrometer Caliper	Evaluate scale divisions Read and record fractional measurement	*"Transfer of Learning"* Bring several different objects from home and the workplace to class. Identify what part of each object is to be measured, e.g., length of wire, width of book. Have several different measuring tools available. Ask students to select the appropriate tool, measure, and record.	State and record fractional or decimal measure-ment of product using an

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Label all scale markings on the measurement tool. Count the intervals, then count the numbers of smallest divisions from the last interval mark on the measurement tool. Read and record a specific dimension on a measuring tool.		Read and record decimal measurement	If digital calipers are used in the company, practice reading and recording the measurement of several objects or products. Next, use vernier calipers and compare the results. Discuss the difference in using each one.	appropriate measuring tool.
***Goal #6:* Convert fractional measurement of product to decimal equivalent and vice versa.**				
State that decimal numbers are fractions and represent a part of some quantity. Convert a fraction form to decimal form by dividing the top of the fraction by the bottom. Differentiate between terminating decimals (no remainder) and repeating decimals (repeat a sequence of digits). Convert a decimal form to a fractional form by using the place value as the bottom part of the fraction.	Specification sheets Simplified blueprints Company conversion charts Product measurements	Know the function of numerator and denominator of fractions Convert fractions to decimals Know place value of decimals Covert decimals to fractions	Using a copy of the company or generic conversion chart, delete some of the given conversions. Ask students to fill in the missing fraction or decimal. Working in pairs, have students measure several products or objects with a tape measure. Record the measurement and convert to decimal equivalent. Find out the most commonly used decimal-fraction equivalents in the workplace. List all of the fractions on individual index cards. Write the decimal equivalent on other index cards. Mix the cards together and give five cards to each student. The students are now required to trade and match with other students to get their five "pairs".	Convert fractional measure-ment of a product to decimal equivalent and vice versa

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
***Goal #7:* Read and interpret company charts, graphs, tables, and/or diagrams.**				
List different types of graphs, e.g., circle, bar, and line Identify different graphs, charts and schedules used in the company Identify information across rows and down columns in a variety of graphic formats Scan various company graphs and identify title or heading, names of axes or sections, information in the key, and source of graph information Identify specific information from a company graph or chart Compute numeric information on a company graph or chart in order to obtain information to be used in drawing conclusions Draw conclusions, make inferences, or make predictions based on the information in a company graph or chart	Charts, graphs, tables, and/or diagrams created and displayed by the company Charts and graphs found in industry publications Graphs in local newspapers or magazines Production data	Scan for information Read points on horizontal and vertical axes Plot points Compare graphic information Calculate numeric information Draw conclusions Make inferences Make predictions	Give students company data or create hypothetical data, e.g., weekly production numbers, pieces rejected vs. monthly production, and graph paper. In pairs, ask students to construct an appropriate graph and present to the class. Obtain company graphs that show quarterly data or yearly data. Ask students to compare values represented and draw conclusions about the information. Analyze the conclusions, find patterns or trends if possible. Ask the students to make a prediction about future occurrences. **Transfer of Learning** Request students to find a graph in the local newspaper, a magazine, or on the company bulletin board that relates in some way to their jobs, the company, their community or their family/household. They are to write a brief summary of the graph and describe why it is important in their lives.	Compare graphic information, calculate numeric information, draw conclusions and make predictions based on graphic company information.

WORKPLACE MATH II

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Goal #1: **Perform arithmetic with fractional and/or decimal measurement numbers used in the company.**				
Add, subtract, multiply and divide measurement numbers using fractions and/or decimals Determine place value of decimals Round measurement numbers to a designated significant digit commonly used in the production process Convert fractional measurement of product to decimal equivalent and compare to specification dimension given in decimal form Convert a given measurement from one unit to another Define tolerance as used in technical measurements in specifications	Measurements performed in the company Specification sheets Conversion charts used by employees Measuring tools used on the job	Add, subtract, multiply, divide fractions and decimals Determine place value Round off decimals Convert fractions to decimals Convert units of measurement	Give students several specification sheets and ask them to locate measurements with tolerances and to calculate upper and lower limits. Next, give them several product measurements and determine if the measurements fall with the tolerances. In a large group discussion, pose several "what if" questions, such as: 1. What do you do if your measurement is above or below tolerance? 2. What do you do if a measurement specification is missing? 3. What do you do if the specification is in metric measure? 4. If you normally use a calculator for calculations, what would you do if it was not available?	Given a technical measurement with a tolerance, calculate the upper and lower limits of size and determine if a product lies within the limits.
Goal #2: **Convert from U.S. standard to metric measure and vice versa using company product specifications.**				
State the importance of metric measure in the manufacturing industry Define and explain the metric units used in the workplace	Work orders Company blueprints	Understand meter and other metric length units	*"Transfer of Learning"* Locate and distribute articles from magazines or newspapers on metric measure in the industry and the United States. Discuss the relevance of metric measure and the global impact of a universal measuring standard	

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Demonstrate how metric units are related to corresponding English units Explain how to convert from one unit to another Identify U.S. Standard and metric measurements on a specification	Specification sheets Measuring devices	Recognize U.S. Standard and metric measure Convert U.S. Standard to metric measure and vice versa	Create a simplified drawing of a blueprint with metric measurements, ask students to convert to U.S. Standard	Given a product measurement in U.S. Standard, convert to metric or vice versa
Goal #3: **Read, convert, and record direct measurement where the numerical reading is displayed on some sort of scale.**				
Define accuracy and precision of a measuring instrument Identify significant digits that represent a measurement result Demonstrate how to use various measuring instruments of the workplace State a fractional or decimal number readout on a measurement instrument Record a fractional or decimal number readout on a measurement instrument	Company measuring devices such as machinist's rule, tape measure, micrometer, caliper, gauges Company product	Determine decimal place value Add, subtract, multiply decimals Add, subtract fractions Calculate decimal equivalent Round measurement numbers Understand and read scale divisions on a measurement instrument	Draw several measuring instruments with their scale displayed or ask students to bring in the tools they use on the job. Ask students to determine the how the scale is graduated and to find designated dimensions. Record in fractions or decimals.	Measure several products or objects using an appropriate measuring device; record and recite the measurement

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Goal #4: **Solve problems involving ratio and proportion in order to determine machine downtime and scale drawings.**				
Define ratio in terms of company-specific units Define proportion using two ratios Determine downtime of a machine using a proportion equation Create a scale drawing of a company product using a proportion equation Calculate the missing dimension on a simplified blueprint by measuring the dimensions on the actual product and using a proportion equation State the difference between direct and inverse proportion	Production data Simplified blueprints	Multiply and divide whole numbers, decimals and fractions Set up ratios Set up and solve proportions Understand direct and inverse proportion	Using various company products or objects, ask students to make a drawing to scale. Create several different job scenarios in which the student is to determine the downtime of a process or machine. *"Transfer of Learning"* 1.) Using a floor plan of a home and a scale, ask students to determine the total square footage of the home. 2.) Bring in or create several ratio mixtures from home, e.g., gas/oil for engines, concentrate/water for insecticides or fertilizer. Ask students to determine the quantity needed of each to arrive at a designated amount.	Use ratio and proportion to determine machine downtime and create a scale drawing.
Goal #5: **Determine percentage of any of the following workplace situations: waste, downtime, shrinkage of a product, efficiency of a process or a machine, percent increase or decrease of a company process.**				
Write fractions and decimals as percents Convert percents to decimals Identify the three quantities-total amount, part being compared with the total amount, and rate-as they are related in the percent problem formula Apply the percent problem formula (Percentage=Rate X Base) to different company percent problems	Written work instructions Work orders Product instructions Procedures Waste	Understand percent as a comparison of two numbers Write fractions and decimals as percents Convert percents to decimals Apply percent	Create several specifications sheets which call for a part to be machined at a certain measurement. Next, give the students the actual measurement and ask them to calculate the machinist's percent error. Obtain or create data from production showing the quantity of waste from a machine process or from operator error. Ask students to calculate the percent of waste.	Determine percentage of any of the following: waste, downtime, efficiency of a process or a machine, percent

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Determine the efficiency of a company process by comparing the power output to the power input times 100%. (E=output/input X100%) Determine the percent tolerance of a product dimension by comparing the measurement tolerance to the measurement times 100%. (PT=tolerance/measurement X 100%) Calculate the percent change-decrease or increase in a machine output of product per day Calculate downtime of a machine by setting up and solving a proportion.	Production	problem formula-(Percentage=Rate x Base) Apply estimation skills to predict answer	In a small group have students design a production line, project cost of labor and materials, determine price of product and percent of profit. This activity can be simple or complex depending on class abilities and extent of teacher preparation. Advanced classes may wish to problem solve and "create" a small company.	increase or decrease of a company process.
***Goal #6:* Using the relationship of geometric principles, basic algebra, and measurements, determine weights, perimeter, area, and length of company products.**				
Determine perimeter and area of company products. Calculate weight per square foot of a company product. Calculate coil weight, gage, and length of a company product.	Company product Simplified blueprints Measuring tools Scales Coil weight and length calculator	Add, subtract, multiply, and divide whole numbers, decimals, and fractions Compute the perimeter and area of certain polygons Calculate the diameter and circumference of a circle Use proportion	Create several simplified blueprints or drawings of company products with missing dimensions. Have the students determine the missing dimensions. Using stock and finished product dimensions, ask the students to calculate the square amount of waste. This exercise may be applied to any product produced.	Determine weight, perimeter, area, and length a company product.

COMMUNICATION SKILLS I and II

These two courses are designed in a modular fashion. *Communication Skills I* stresses reading skills along with basic listening and speaking skills. *Communication Skills II* emphasizes writing skills along with basic discussion techniques. Each goal includes specific learning objectives, workplace contexts, a list of some of the basic skills needed to attain the goal, some possible activities, and an example of a measurable outcome to show mastery of the goal. The course should be customized for the learners by mixing and matching goals. For example, the instructor and student may design an individualized course of study by selecting specific goals needed by the student, the instructor may design a course based on a company's immediate needs by selecting the appropriate goals from each course, or the courses may be taught as is. The flexibility of this design offers may options to the company, instructor, and student. The order of goals in each course is designed to progress from beginning-level skills to increasingly more difficult skills, although completion of one goal does not necessarily depend on completion of the previous goal. If students wishes to begin at a higher level goal and can demonstrate satisfactory completion of previous goal outcomes, they may do so. The final goal in each area of reading, writing, listening, and speaking is the highest skill level in that particular section and a culmination of the previous goals. The following chart displays the goals in each course. For a more detailed description of the courses with the learning objectives, workplace contexts, basic skills, and outcomes, see the course outlines following this page.

COURSE GOALS

COMMUNICATION SKILLS I - *Focus on Reading*

- Locate and comprehend product information on a work order
- Read and comprehend written work instructions from a supervisor or team leader
- Read and comprehend company safety standards and procedures
- Read and interpret employee handbook and/or company policies
- Read and interpret company schedules, charts, and graphs
- Evaluate the accuracy of written sequential standard operating procedures and/or job descriptions
- Listen to and comprehend instructions from supervisor or co-worker
- Give directions to team members or co-workers
- Get information from supervisor or team leader

COMMUNICATION SKILLS II - *Focus on Writing*

- Fill in date, time, and other requested information on work forms
- Apply note-taking skills in a training session and/or meeting
- Write a short note or simple memo about a request or workplace occurrence
- Write a descriptive paragraph of a workplace event or situation
- Write a sequential job procedure
- Organize information into a written report
- Apply appropriate discussion techniques in a team or group meeting

COMMUNICATION SKILLS I - Focus on Reading
(Emphasis on Reading Skills, Listening and Speaking Skills)

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
***Reading Goal #1:* Locate and comprehend product information on a work order.**				
Identify categories on a work order Locate information in the appropriate category on a work order Recognize and interpret task-related words, abbreviations, and acronyms Distinguish between important information and unimportant information as it relates to a particular work order Locate new non-technical vocabulary in a dictionary when appropriate	Work orders Shipping labels Production orders Product labels	Skim for overview Scan for details Read technical terms Access dictionary Use back-ground knowledge	List the types of information found on a work order Highlight or underline task-related words, abbreviations and/or acronyms Locate and define new vocabulary words Create a list of yes/no and short answer questions which elicit information found on a work order Prepare a list of true/false statements based on customer information found on a work order	Identify specific details on a work order
***Reading Goal #2:* Read and comprehend written work instructions from supervisor or team leader.**				
Skim for overview of written work instructions State main idea of work instructions Scan for detail of written work instructions Recognize and interpret task-related words, abbreviations, and acronyms on written work orders Order instructions sequentially, if needed	Written work instructions including lists of single words, phrases, sentences Job procedures	Skim for general information Scan for detail Read technical terms Sequence information	Choose examples of written work instructions from a text or "create" some. Discuss the purpose of the instructions and whether or not the writer wrote clear instructions. Were abbreviations confusing? Discuss how the learners could seek clarification, if needed. Decide which format-lists of phrases, single words, or complete sentences make the most effective method of written communication.	Explain either in an oral or written manner an under-standing of a set of written work instructions.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
***Reading Goal #3:* Read and comprehend company safety standards and procedures.**				
List sources and location of safety materials Skim company safety materials for overview Scan company safety materials for detail Match company safety codes and symbols with company safety procedures Interpret company-specific safety vocabulary and common abbreviations Summarize safety information from charts and printed visual materials Locate and explain specific information from company safety texts and forms Read about and discuss common safety accidents Read and name procedures for reporting job-related hazards, accidents, injuries, and damages	Safety signs Safety manuals and related publications Safe work procedures Safe work attire Accident reports Company safety reports	Skim for overview Scan for detail Define words Comprehend and explain codes and symbols Use charts and forms to locate information Analyze information from texts and work environment Determine relationships Make critical judgements	Before reading anything, brainstorm a list of safety vocabulary used in the company. Copy and keep in students' folders for review and editing during lessons. Create true and false statements based on information found on company charts and/or forms; students can refer to charts and forms to provide answers. Using information from a sample accident report form, create a class story about the incident. Read about a potentially dangerous situation in a workplace. As a class decide what safety rules are important, what could happen if a worker did not follow safety rules, and what each student would do in that particular situation. Read about the evolution of safety requirements in manufacturing.	Identify and demonstrate company safety standards.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
***Reading Goal #4:* Read and interpret employee handbook and/or company policies.**				
Read and state company policy regarding absences/sick leave. Read and state company policy regarding vacation/holidays. Read and state company policy regarding pension plan/retirement. Skim and scan information regarding health care coverage. Read and fill out medical insurance forms. Name the criteria for performance evaluation.	Company employee handbook Company policies Human Resources	Skim for overview Scan for detail Recall information Comprehend and explain information Organize information Apply information in specific situations	Create several possible employee scenarios using a specific learning objective. Prepare a list of questions that require the students to find the answers in a specific part of the employee handbook. This is a good activity for pairs or small groups. Ask the human resource person to give a presentation on a specific topic such as the company's health care policy or any other area pertinent to the student's needs. **Transfer of Learning** Bring in local newspapers or articles of interest to the students and ask them to read and locate specific information.	Interpret various sections of the employee handbook or specific company policies by oral or written answers to specific questions.
***Reading Goal #5:* Read and interpret company schedules, charts, and graphs.**				
Identify and locate company schedules, charts, and graphs. Identify information across rows and down columns in a variety of graphic formats. Scan various company schedules, charts, and graphs and identify title or heading, names of axes or sections, information in the key, and sources of information.	Schedules, charts, and graphs created and displayed by the company. Charts and graphs found in industry publications	Skim for overview Scan for detail Locate information Summarize information	Ask students to create a schedule of their	Interpret information from various company schedules, charts or graphs by oral or written answers

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Locate specific information from a company schedule, chart, or graph. Summarize information in a company schedule, chart, or graph.	Production schedules Vacation schedules			to specific questions
Reading Goal #6: **Evaluate the accuracy of written sequential standard operating procedures (SOP's) and/or job description.**				
Skim and scan SOP/job descriptions for overview and detail. Recognize and define technical terms in SOP/job description. Distinguish between important information and unimportant information in SOP/job descriptions as they pertain to employees jobs. Identify different ways to order procedure (priority, sequence, frequency, or chronological). Determine type of ordering relevant to a job or situation. Sequence procedures or tasks in SOP/job descriptions. Record information in key phrases or simple sentences. Compare and contrast content and sequence of written document and actual job.	Standard Operating Procedures Job descriptions	Skim for overview Scan for detail Identify technical terms Explain technical terms Make comparisons Organize information in a specific order Create a pattern Make critical judgments	Introduce the concept of a flowchart. Practice creating flowcharts with some familiar tasks, then ask each student to create a flowchart of his/her job from beginning to end. Students should edit and review flowchart for correctness. If possible, ask students to confirm their flowcharts with a supervisor. When the final version is finished, compare with the SOP. Post the results.	Accept or revise the content and sequence of a standard operating procedure and/or job description. (*Important: This is only a <u>method</u> used in the classroom to evaluate the reading goal.*)

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
***Listening and Speaking Goal #7:* Listen to and comprehend instructions from supervisor or co-worker.**				
Identify non-verbal active listening behavior. Listen for main points of instructions. Listen for order of steps in instructions. Repeat and/or paraphrase the main points of the instructions to the speaker. Ask questions for clarification of instructions, if necessary. Take brief notes.	Workplace training sessions Instructions between shifts Instructions from supervisor or team leader Company meetings	Recall active listening behaviors Summarize main points Request clarification Take notes	Role play job scenarios in which one student gives instructions and another receives them. The remaining students should list main points of the instruction and compare notes at the end of the role play. Practice non-verbal active listening behaviors with partners. Describe non-verbal behaviors observed in the workplace that lead to misunderstandings and incorrect information. Discuss cultural differences in non-verbal behaviors and make a chart showing the differences.	Demonstrate comprehension of instructions through a task completion.
***Listening and Speaking Goal #8:* Give directions to team members or co-workers.**				
List steps to complete a task. Classify steps of task for easier comprehension. Demonstrate task. Review and clarify steps to task. Ask questions to check for understanding.	Instructions to co-workers in 1.) meetings 2.) training sessions 3.) shift change	Classify information Order or re-order information Explain information Restate information	Select a task that is related to the workplace such as punching the time clock, explaining a section of the benefit package, explaining a new procedure, filling in a form, measuring a product, etc. Each student will prepare and give instructions to a small group. To check for understanding, the group will correctly complete the task.	Explain a job specific task in a clear and concise manner and check listeners for understand through task completion.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Listening and Speaking Goal #9: **Get information from supervisor or team leader.**				
Identify different types of questions, e g , yes/no, short answer, open-ended. State who in the company is most likely to have the information or knowledge needed to answer a specific question. Identify the appropriate time and way to ask a question.	On-the-job interactions with supervisor and/or team leader. Production New job or machine procedures	Identify types of questions Classify key personnel in company Distinguish between appropriate behaviors	Create a list of questions that an employee might ask about a new job, promotion, or a new machine. Categorize the types of questions (who, what, where, when, why, how), identify who in the company might have the answers, and the appropriate time to ask questions of these people.	Devise an open-ended question to ask supervisor, record response, and present answer to instructor.

COMMUNICATION SKILLS II - Focus on Writing
(Emphasis on Writing Skills, Listening and Speaking Skills)

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Writing Goal #1: **Fill in date, time, and other requested information on work forms.**				
Scan work form for required information Interpret task-related words, technical terms, or abbreviations on a work form Fill in work form legibly Check work form for accuracy, especially the numbers	Time sheets and logs Purchase orders Work orders Work schedules	Write numbers, dates, times Write technical words Record essential information Proofread for errors	Develop different customer orders. Ask learners to fill in specific information. Check for accuracy. Have on hand several samples of various work forms that are completed incorrectly. In pairs, have learners find the mistakes. As a group discuss how these errors can occur and correct them.	Fill in requested information on a work form.
Writing Goal #2: **Apply note-taking skills in a training session and/or meeting.**				
Identify the main points during an informational meeting Record main points and/or new information using abbreviated words, phrases or short sentences. Review notes for clarity. Ask for clarification, if necessary. Determine symbols to use in notes for emphasis or future action. Summarize and state the content of the training session or meeting by reviewing written notes.	Training sessions Team meetings Company or union meetings	Write abbreviated words, phrases, short sentences Summarize and record essential information Use concise language Use symbols	Conduct brief informative sessions using information from employee handbook, company newsletter, or industry publication. Model the correct way to take notes. In pairs, have one learner present information while the other takes notes then reverse the roles. Compare notes. **Transfer of Learning** Ask a person from human resources to give a brief presentation on company benefits or a new company policy. Students will take notes, ask for clarification and compare information at the end of the session.	Take clear and concise notes during a brief informative session on a company issue. (*The instructor may present the information using the employee handbook or company newsletter.*)

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Writing Goal #3: **Write a short note or simple memo about a request or workplace occurrence.**				
Describe the correct format for a memo Identify the appropriate person or department to receive the memo Determine pertinent information to include in the memo State main idea of memo in first sentence of message Organize the pertinent facts in appropriate order Write message in clear and concise sentences Check for correct spelling and overall clarity	Requests from employees for vacation time, time off, a meeting, change of shift, change of hours, or supplies Suggestions Instructions Complaints Shift changes	Organize information Analyze information Write simple, complete sentences Correct spelling	In pairs, role play a situation where a worker writes a memo to his/her supervisor requesting time off for vacation, purchase of specific supplies, description of a machine malfunction, or any other pertinent workplace occurrence. The "supervisor" replies in a return memo.	Write a memo, using proper format, about a workplace occurence or a request

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Writing Goal #4: **Write a descriptive paragraph of a workplace event or situation.**				
Identify intent and target audience of the written paragraph. For example: • intent - recomendation for an employee award • target audience - personnel or department head Outline a workplace event or situation by identifying key points. Add supporting details to each key point. Write a descriptive paragraph using clear, concise sentences and technical terms, if necessary. Check sentence structure, correct grammar, punctuation, capitalization, and spelling. Evaluate writing by requesting feedback from instructor or peer. Revise writing. Write a neat final copy.	Workplace accident Recommendation for an employee award Documentation of a machine breakdown or mechanical problem	Gather details Analyze information Classify information Order information Write clear, concise sentences Write key technical terms Use correct grammar and sentence mechanics Evaluate writing	Create drawings, obtain pictures, or photographs of events or situations in the the workplace. Instruct students to write brief, descriptive accounts of the activities or transactions performed. The goal of this activity is to compose sentences which express a complete thought and fit in clearly with the rest of the writing. Avoiding sentence fragments, run-on sentences, and rambling sentences is stressed.	Write a descriptive paragraph of a workplace event or situation.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
***Writing Goal #5:* Write a sequential job procedure.**				
List job task steps Organize job task steps in sequential order Write a complete sentence for each step Evaluate sentences for clarity, grammar, conciseness, and correct spelling	Documentation of job procedure ISO 9000	Organize information Use correct grammar Correct spelling	Examine examples of simplified flow charts. Explain the usefulness of visual presentation of a process. As a whole class, create several flow charts using familiar examples to reinforce the concept (e.g. cause of stress on the job, cause of car engine failure). Next, ask the students to create a flow chart of their job tasks. After the students have reviewed and edited the tasks in the flow chart, ask them to write in complete sentences the procedure they have produced visually. Use peer editing to evaluate clarity and conciseness of sentences. Final product may be presented to management.	Write a sequential job procedure from a flowchart.
***Writing Goal #6:* Organize information into a written report.**				
Identify different types of written reports, documents, summaries, informational releases used in the workplace, e.g., accident reports, production reports, policy updates, company news releases List ways of organizing information appropriate to specific written forms, e.g., chronological order for accident reports Compare and contrast formats of commonly used written documents within the company	Documentation of a workplace situation Description of qualifications for a new job posting or promotion within the company Suggestions for product or process improvement Evaluations	Classify information Order information Paraphrase information Organize information	Brainstorm for different workplace scenarios or situations that could be used as the subject of a written document, e.g., evaluation of educational opportunities, suggestions for improving communication on the job, ideas for improving production or description of qualifications for a new job within the company. Students should maintain the list in their classroom folder for future use in the evaluation of this goal.	Select a workplace situation and write at least two paragraphs using the proper format and paragraph-writing process.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Identify the three parts of a paragraph: topic sentence, body, and ending sentence. List the main steps for writing paragraphs: • Write down main thoughts and ideas (brainstorm). • Organize the ideas in chronological order or order of importance, depending on topic. • Write the topic sentence that expresses what the paragraph is about. • Write several sentences that support the topic sentence using the organized ideas. This creates the body of the paragraph. • Write an ending sentence about the main idea that summarizes the content of the paragraph. • Revise writing. • Check sentence structure, correct grammar, punctuation, capitalization, and spelling. • Proofread writing again. Write a short paragraph, using the paragraph-writing process, that focuses on a single main idea in a workplace context.	Written informational releases to employees from supervisors, personnel, or upper management	Make comparisons See link between ideas Write simple and compound sentences Write a paragraph Make critical judgments	Create several "puzzle paragraphs" by cutting out each sentence in a selected paragraph and placing the pieces in an envelope. Give one envelope to a pair of students and ask them to recreate the paragraph. **Transfer of Learning** Discuss a current issue of importance in the community or from the local newspaper. (Read different articles from newspapers or magazines, if necessary, to promote discussion) Write a letter to the editor in reply to the issue. If possible, mail it in to a local paper.	

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
***Listening and Speaking Goal #7 :* Apply appropriate discussion techniques in a team or group meeting.**				
Identify agenda or topics to be covered in meeting. State possible statement and/or questions for meeting. Distinguish facts from opinions presented in the meeting. Demonstrate active listening and appropriate behavior for meetings. State clear and concise verbal comments in the meeting. Summarize expectations at end of meeting to confirm expected outcomes. Write a brief summary of the meeting.	Team meetings Group or shift meetings Company meetings Department meetings Committee meetings Performance reviews	Comprehend information Summarize information Prepare questions Distinguish between fact and opinion Express ideas verbally Write a summary	Prepare several job-related agendas. Form small discussion groups and practice discussion techniques. The purpose of small discussion circles is to ensure that everyone contributes and becomes more confident expressing ideas. Ask a supervisor or team leader to join discussion circles. Have students review techniques with supervisor. Request more ideas for discussion circles from the supervisor or team leader.	Demonstrate appropriate discussion techniques in a team meeting scenario using the learning objectives as a checklist.

PROBLEM SOLVING IN THE WORKPLACE

This course emphasizes problem solving as a process and uses a project-based team strategy. In addition to teaching problem-solving skills, this strategy also promotes the interpersonal skills necessary for successful execution of group projects in the workplace. As the students learn in a cooperative team atmosphere, they also learn to transfer those skills to an individual situation at work or outside of work. The goals and learning objectives in this course are arranged sequentially and should be taught accordingly to achieve the maximum benefit. The ideal conclusion of the course is the presentation of the problem-solving process in the context of a real-life workplace problem. The chart below outlines the goals for this course. For a more detailed description of the course goals with specific learning objectives, workplace contexts, a list of some of the basic skills needed to attain the goals, some possible activities, and examples of measurable outcomes to show mastery of the goals, see the course outlines which follow.

COURSE GOALS

PROBLEM SOLVING IN THE WORKPLACE

- Understand problem solving as a process
- Recognize and identify problems in the work environment
- List and discuss the interpersonal skills necessary for successful team approach projects in the workplace
- Define a workplace problem using a team project-based approach
- Generate and verify possible causes of problem
- Identify and evaluate alternative solutions to the problem
- Create an action plan to implement the solution to the problem

PROBLEM SOLVING IN THE WORKPLACE

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Goal #1: **Understand problem solving as a process.**				
Define "process". Outline the steps in a problem solving process for a general overview of the process. Discuss different approaches to problems including team approach and individual. Recognize that problems often offer opportunities.	Situations, issues, questions, dilemmas, controversies, or decisions in the workplace.	Generate ideas Sequence steps Compare and contrast information Organize and process information- (Seeing Things in the Mind's Eye)	As a group discuss the concept of "process". Ask the students to give examples of a process from their work experiences. Discuss how the students solve problems at work and at home. Do they use the same process or a different one? Ask students to create a flow chart of a process from a narrative description.	Complete a flow chart of a problem solving process.
Goal #2: **Recognize and identify problems in the work environment.**				
Determine a common definition of the word "problem". List possible reactions to problems in the workplace such as denial, blame and avoidance. Identify possible situations, issues, questions, dilemmas, controversies, or decisions in the workplace that could be potential problems.	Communication problems. Production problems. Time management problems. Personal problems. Value or cultural conflicts.	Generate ideas Describe situations Evaluate and choose relevant situations or central issues for problem solving	Create a variety of statements using a mixture of problem statements and non-problem statements. Ask students to identify the problem statements and explain why it is a problem statement.	List possible problems found in the work environment.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Goal #3: **List and discuss the interpersonal skills necessary for successful team approach projects in the workplace.**				
Discuss how to work cooperatively with team members and contribute to the team with ideas, suggestions, and effort. Demonstrate different ways to help others learn in a team situation by: • summarizing ideas • setting goals • asking open-ended questions • asking for clarification • prioritizing • reflecting on process of learning. Define and discuss the roles and responsibilities of team members (e.g., motivator, facilitator, recorder, etc.). Identify how people in the workplace respond to conflict, authority, group dynamics, and body language (hand gestures, nonverbal cues, distance and space requirements). Compare and contrast techniques used by different people in the workplace to resolve problems. Define conflict resolution and brainstorm different strategies that can be used in a team setting such as compromising, collaborating, and accommodating.	Interactions with co-workers, supervisors, and/or management.	Receive, interpret, and respond to verbal messages and other cues Communicate oral messages appropriate to listeners and situations. Think creatively Evaluate information Make decisions Know how to learn	Prepare a role playing exercise demonstrating all of the negative aspects of team interactions and team building. Ask the students in the class to evaluate the interactions. Next, ask them to brainstorm for alternative (and more positive) ways of interacting in a team situation. Discuss different student perceptions of teamwork and the interpersonal skills that the members of a team need in order for a team approach to problem solving to be successful. Brainstorm a list and ask students to select the most important interpersonal skills needed on a team. The selected interpersonal skills will then be used in the formation of a checklist to evaluate each team member and self at the end of the problem solving project.	Create an interpersonal skills checklist for each member of the team to evaluate the other members and self at the end of the problem solving project.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Goal #4: **Define a workplace problem using a team project-based approach.**				
Identify the central issue that needs resolution. Identify all of the possible people and/or departments (stakeholders) involved in the situation. Collect data from the stakeholders that includes their idea of the central issue, what change has to be made, what cannot or should not be changed, and how they would measure the success of a solution. Analyze the different options/conditions required by all stakeholders for a solution to be considered successful. Create a problem statement using the following two prompts: 1. How can we .....(central issue) 2. In a way that ....(conditions required for success)	Situations, issues, questions, dilemmas, controversies, or decisions in the workplace People and departments involved in the situation	Understand the organizational structure of the company Set goals Collect data Organize data Consider constraints, risks, and standards for success Analyze conditions Develop strategies for attaining success Summarize	Using a familiar general situation, concept, or topic, create a "concept map" in order to prepare students for creation of a problem map. Begin with the major idea, write it down and circle it. Identify supporting secondary ideas. Write these around the main topic with lines connecting the secondary ideas to the main topic. Identify supporting details for each secondary idea. Then arrange supporting details around the secondary idea. Some general topics may be transportation, time management, and family conflicts. Using a hypothetical *workplace problem* (major idea), create a "problem map" whose pathways *define the stakeholders* (secondary idea) and their *perceptions of necessary changes to solve the problem* (supporting details). See example of problem map in appendix.	Create a problem map and write a problem statement. (See example of problem map in appendix)
Goal #5: **Generate and verify possible causes of problem.**				
State the difference between symptom and cause of a problem. List possible causes of the problem. Discuss and evaluate possible causes and determine primary cause of problem in the problem statement.	Production Communication Time management Training and/or sufficient	Compare and contrast information Make inferences Evaluate information Draw conclusions	Given a problem situation, ask the students to decide how to find the root cause of the problem. Write out on a chart the questions the students would ask in order to determine the root cause. Using class consensus, determine the best questions to use when trying to find the root cause. Examples of questions	List possible causes for problem in problem statement and

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Collect data from stakeholders, if necessary, to verify primary cause of problem.	personnel Safety Waste		would be: 1. What's wrong? 2. Where did the problem occur? 3. Who is involved?	determine the primary cause.
Goal #6: **Identify and evaluate aiternative solutions to the problem.**				
Differentiate between options and solutions. Brainstorm a list of options to the problem statement. Generate a list of viable solutions from the option list . Compare the list of viable solutions to the standard developed in the problem statement. Build a list of solutions from a different point of view. Determine possible impact of the solutions on the stakeholders. Choose the optimal solution to the problem by consensus. Write a brief statement of commitment.	Production Communication Time management Training and/or sufficient personnel Safety Waste	Generate ideas Compare and contrast information Make inferences Evaluate information Draw a conclusion Negotiate Work through group conflict, if necessary	Ask students to create a chart to evaluate the possible solutions. Use a large sheet of paper for each possible solution evaluation. Post the sheets in the classroom, if possible, and do not review or edit until the next class period. Review and edit the charts during the following class period. After editing, discuss what happens during a "break" in a brainstorming session. Also, discuss how turning over a problem to one's intuition sometimes results in the answer "popping" into one's head when least expected.	Write a description of the optimal solution and the rationale behind it.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
***Goal # 7:* Create an action plan to implement the solution to the problem.**				
Write objective of action plan (the optimal solution). List concrete measurable actions to be taken to implement the solution to the problem. Identify and list potential institutional and interpersonal obstacles to the plan. Identify and list resources that are needed to make the solution work. Name support people and stakeholders in the action plan. Prepare a schedule for implementation. Identify and list criteria for success. Identify and list expected benefits. Prepare an evaluation checklist for the stakeholders to measure the effectiveness of the solution. Evaluate the usefulness of the team based approach to problem solving in the workplace with attention to the flow chart, the problem map, and the other outcomes of this course.	Stakeholders in the original situation	Generate ideas List details Evaluate information Make decisions Implement decisions	Plan a presentation of the action plan to appropriate company personnel. Incorporate overheads, graphs, schedules, and charts when possible. **Transfer of Learning** List the goals in this team approach to problem solving that could be applied individually in a non-work environment. Next, give students several non-work scenarios such as: 1. Your spouse has a new job some distance from home, and you only have one car. 2. You want to buy a new television and your spouse wants to buy new carpet. 3. Your son/daughter wants to quit school and get a job. Discuss how to individually apply the problem solving process to these different scenarios.	Write and present an action plan to implement the solution to the problem.

ESL AT WORK 1-3

These courses are designed in modular fashion. They address the language skills of listening, speaking, reading, and writing in the context of the workplace. The content of the courses is presented according to difficulty, priority, and frequency of use. The functional approach to the courses stresses performing communicative tasks that are appropriate to workplace settings and situations. The goals of the three courses are generalized, but the objectives are specific and measurable tasks. Topics range from spelling one's name aloud to participating in a performance evaluation and are grouped into three levels. The chart below displays the goals in each level. For a more detailed description of each level's content with learning objectives, workplace contexts, basic skills, and measurable outcomes, see the course outlines which follow.

COURSE GOALS

Listening and Speaking Goals	Reading and Writing Goals
ESL at Work - Level 1 • Provide personal information orally. • Make and respond to greetings. • Discuss job duties, tools, and equipment. • Give and respond to safety warnings. *ESL at Work - Level 2* • Give and follow oral instructions to complete a task. • Report problems. • Respond appropriately about one's work. *ESL at Work - Level 3* • Identify workplace-related problems and discuss possible solutions. • Paraphrase workplace instructions. • Describe process for promotion and discuss abilities and strengths.	*ESL at Work - Level 1* • Decode workplace forms. • Recall information. • Construct meaning from workplace materials. • Complete simple workplace forms. *ESL at Work - Level 2* • Scan workplace texts for specific information. • Read instructions to complete a task or explain a procedure. • Write a workplace note or memo. • Write instructions to complete a task or explain a procedure/ • Fill in simple charts and graphs. *ESL at Work - Level 3* • Read and interpret a variety of work-related documents. • Read and interpret training materials. • Fill out application for promotion. • Write short paragraphs on a variety of work-related topics.

ESL AT WORK - Level 1

The topics in this course include providing personal, job, and safety information orally; making and responding to greetings and introductions; and reading, understanding, and completing basic workplace forms.

COURSE GOALS

Listening and Speaking Goals:	Provide personal information orally. Make and respond to greetings. Discuss job duties, tools, and equipment. Give and respond to safety warnings.
Reading and Writing Goals:	Decode workplace forms. Recall information. Construct meaning from workplace materials. Complete simple workplace forms.

ESL AT WORK - Level 1

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Listening and Speaking Goals: Make and respond appropriately to introductions. Discuss jobs, duties, tools, and equipment. Give and respond to safety warnings. Provide personal information orally.				
Say letters and numbers. Spell personal information. Introduce self. Introduce co-workers. Make and respond to formal greetings. Make and respond to informal greetings. Ask and answer basic questions about self and family. Ask and answer yes/no and short answer questions about the company. Name work areas and locations of offices and facilities. Name the machines and jobs. Ask and answer questions about physical location. Ask and answer questions about job tasks and procedures. Ask for clarification about job tasks and requests.	Company forms Team or group meetings Company events Company maps Job descriptions Standard Operating Procedures Employee Manual Safety signs	Recognize letters and numbers Make introductions Understand intonation and stress Identify familiar words Identify key words Ask and respond to greetings Ask and answer yes/no, either/or, and wh-questions Read floor plans and maps Sequence job tasks Use repetition to verify information Follow oral instructions	Pair Dictations Whole-class or Pair Match-ups Role Play introductions and greetings Pair Interviews/Share information with class Role Play Information Gap activity based on company floor plan Total Physical Response Activity (TPR) - Put job tasks in order	Verify personal information by spelling words aloud and saying numbers clearly. Introduce self to new employee or visitor. Engage in "small talk" on break or at lunch. Respond orally to questions about company name, location, products, etc.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Make and respond to simple requests. Ask and respond to "wh" workplace questions and requests. Follow simple directions. Give simple excuse for lateness or absence. State the location of different signs in the workplace. Identify the possible safety problems that could occur in the workplace. Respond to oral warnings or commands about safety.	Break time	Leave oral messages in person or on answering machines Communicate emergency situations	Partners give each other instructions using barriers and grids Role Play calling in sick or leaving message on answering machine Role Play safety warnings and responses	Give directions to visitors and co-workers. Talk about one's job. Ask a co-worker for help. Call in sick. Identify safety issues. Respond appropri-ately to safety warning.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Reading and Writing Goals: Decode workplace forms. Recall information. Construct meaning from workplace materials. Complete simple workplace forms.				
Recognize letters and numbers. Write letters and numbers. Read and write alphanumeric codes. Read commonly used abbreviations for work-related words. Identify details and specifications within workplace materials. Read and write names of tools, supplies, and equipment. Preview materials and forms to make predictions. Scan workplace materials with special attention to unfamiliar words and phrases. Read commonly used work-related materials. Enter information on workplace forms. Read a safety sign. Read a simple chart.	Workplace forms Safety signs, instructions, and equipment New equipment or procedures Company newsletters or memos Employee manual Warning signs SPC charts	Distinguish between upper and lower case letters Match numbers to words (1 to one) Copy letters and numbers Match abbreviations with words Develop work-related sight word vocabulary Scan for information Skim for gist of something Paraphrase Read information in columns and rows Fill out simply form	Use flash cards to match upper and lower case letters and numbers and words. Number and letter dictation Whole-class match ups Word and sentence dictations Barriers and grids for review and/or following directions Strip sentences/stories Information gap activities Jigsaw reading Follow oral directions to fill in chart	Read simple work-related words, phrases, and sentences. Locate materials, information, or equipment using codes, e.g. stock. Read and recall information. Fill out a request for tool or equipment. Fill out a simple form. Participate in company activity described in memo or newsletter. React appropriately to safety sign.

ESL AT WORK - Level 2

The topics in this course include giving and following oral instructions, reporting problems, reading and writing instructions, and filling in forms, charts and graphs.

COURSE GOALS

Listening and Speaking Goals:	Give and follow oral instruction to complete a task. Report problems. Respond appropriately about one's work.
Reading and Writing Goals:	Scan workplace texts for specific information. Read instructions to complete a task or explain a procedure. Write a workplace note or memo. Write instructions to complete a task or explain a procedure. Fill in simple charts and graphs.

ESL AT WORK - Level 2

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Listening and Speaking Goals: Give and follow oral instructions to complete a task. Report problems. Respond appropriately about one's work.				
Give and respond to simple instructions. Give and respond to multiple-step instructions. Explain how to perform a task or explain how to operate equipment. Teach a routine task to another person. Describe job duties. Give an overview of the production process in the company. Report problems encountered when completing a task. State reasons for request for time off from work. Respond to comments about quality of work. Discuss payroll deductions and report problems. Discuss safety goals. Discuss safety problems.	Operation of tools and equipment Standard Operating Procedures Job review Company policy manuals and written procedures Equipment/operating manuals Training a new employee Training videos ISO 2000 requirements	Give oral instructions Follow oral instructions Discuss abilities, strengths, areas for improvement Make requests orally State problems Ask for or give verification Repeat information or instructions Request information Paraphrase Summarize	Total Physical Response using workplace materials, tools, and equipment. Chain Description: Students go around the room and each describe a step of a workplace procedure or task. Barrier and grid games Role play Simulations: Instructor sets up situations that approximate "real" scenarios at work and workers use oral language to resolve conflicts. Problem Posing: Instructor uses code such as photo, anecdote, dialogue to guide workers through five steps of discussion and critical thinking. Problem-solving: Instructor gathers information about typical problems at work and workers discuss them and determine appropriate action.	Give directions to complete a multi-step task. Tell another person how to perform job tasks. Request leave from work for medical, personal, and bereavement reasons. Explain reasons for non-performance of job, e.g. equipment or tool malfunction, lack of materials. Demonstrate how to operate machinery or equipment.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Discuss reasons for safety equipment. Give and respond to safety warnings related to equipment, materials, and procedures. Identify rewards and/or incentives for safety. Ask for clarification about the consequences of a disciplinary action in the workplace. Discuss reasons for termination of employment. Explain in-company steps and procedures for solving workplace problems.	Paycheck stubs OSHA regulations Safety signs and warnings MSDS sheets Company programs and safety campaigns Policy Manuals Company training programs Attendance policy	List information Understand cause and effect Categorize information Ask and respond to questions orally	Information Gap: Workers have incomplete charts, tables, graphs, etc. and must ask and answer questions to reconstruct complete information. Dialogues: Instructor creates dialogues using a variety of workplace vocabulary, functional language, and typical situations. Match-ups: Workers match information such as tools with use, job titles with job duties, and safety equipment with purpose. Brainstorming	Report compensation or benefit error to appropriate person and ask for correction of error. Explain in-house steps for problem-solving to another person. Record information on chart or graph. Give safety warnings to another person. List reasons for termination.

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Reading and Writing Goals: Scan workplace texts for specific information. Read instructions to complete a task or explain a procedure. Write a workplace note or memo. Write instructions to complete a task or explain a procedure. Fill in simple charts and graphs.				
Read basic non-technical personnel policies with assistance. Read and fill out health insurance forms. Read a paycheck stub and work order for specific information. Read in-house job announcements and discuss qualifications. Read employment reviews or performance appraisals. Read a simple blueprint or specifications to complete a job or procedure. Read on-the-job training materials for entry-level jobs. Read and interpret work-related charts and graphs. Read a SPC chart and take appropriate action. Complete appropriate sections of a work order accurately.	Company forms Evaluation materials Company materials Work orders Benefit information Company memos and policy procedures Company paycheck stub Company job postings Blueprints Job specifications Company charts and graphs	Read technical vocabulary Determine meaning of an unfamiliar work from context Scan for information Read non-technical vocabulary and specific information Read columns and rows Read for literal comprehension Understand main idea Skim for information Access a legend to read a document Read for inferential comprehension Read for critical comprehension	Match vocabulary with definitions Identify "clues" to a work's meaning in a text Jigsaw reading Locate specific information in documents by circling or underlining Locate errors in a document and correct them Answer true/false questions and provide correct answers Answer multiple-choice questions Match abbreviations with words Transfer information from one document to another accurately Transfer prose information to chart	Match technical and non-technical vocabulary with definitions Read a document on a familiar topic and summarize it Read a document on an unfamiliar topic and paraphrase it Complete health and insurance forms accurately Write a corrective action report Complete an incident or accident report

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcome*
Write a short note to supervisor on various workplace issues Write a short note to report a problem Write a short memo to report a problem Write a short note to next shift co-worker describing changes, issues, or problems Write instructions for a co-worker to complete a task Fill out accident report with assistance	Workplace forms In-house procedures Work instructions Schedule changes Incident/accident forms	Follow written instructions Write basic personal information Write common words Write technical words Write abbreviations Write a simple sentence Write a complex sentence Write a phrase to express an idea Write notes Write a paragraph Use correct punctuation and capitalization	Interpret information contained in chart by writing prose explanation Dictation Write note to supervisor Write response to performance appraisal Write statement of corrective action	Complete a work order Write a short note to a co-worker about a job procedure change Use a legend to locate information on a blueprint or specification Enter information on a chart Take appropriate corrective action based on information from a SPC chart.

ESL AT WORK - Level 3

The topics in this course include discussing and solving workplace problems; reading and understanding a variety of workplace documents including charts, graphs, and training material; and writing short paragraphs using correct grammar, capitalization, and punctuation.

COURSE GOALS

Listening and Speaking Goals:	Identify workplace-related problems and discuss solutions. Paraphrase workplace instructions. Describe process for promotion and discuss abilities and strengths.
Reading and Writing Goals:	Read and interpret a variety of work-related documents. Read and interpret training materials. Fill out application for promotion. Write short paragraphs on a variety of work-related topics.

ESL AT WORK - Level 3

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcomes*
Listening and Speaking Goals: Identify workplace-related problems and discuss possible solutions. Paraphrase workplace instructions. Describe the process for promotion and abilities and strengths.				
Listen to description of workplace problems and suggest possible solutions. Describe common workplace and safety problems in terms of type and frequency. Make suggestions for safety improvements. Respond to complaints about safety compliance. Give and respond to advice about how to perform a task. Use chronological order to describe job duties. Give and respond to instruction about how to use new safety equipment, machinery, tools, etc. Paraphrase oral instruction to complete a task. Engage in small talk with co-workers, supervisors and other personnel. Explain company benefits.	Team or group meetings Standard operating procedures Job descriptions On-going problem solving Safety campaigns Work orders Updates, announcements, memos from Human Resources and supervisors	Interpret oral information Make and respond appropriately to advice Provide information according to time order List items orally Give and respond to instructions Restate information Paraphrase information Summarize information	Simulate team meetings Role-play Dictation Conversation matrix Dialogues Demonstrate how to use tools, operate machinery, or equipment Demonstrate how to perform job tasks Interview personnel from Human Resources about benefit changes	List 3-5 common workplace problems and offer 2 or more possible solutions for each problem Listen to multi-step instructions to complete a task, repeat the information, and perform the task accurately List 5-7 job abilities and 2-4 opportunities for improvement Listen to an announcement or message on an answering machine and paraphrase it State steps for applying for promotion

1994-97 College of Lake County National Workplace Literacy Program

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcomes*
Explain likes and dislikes about job. Discuss appropriate process and interview procedures when applying for promotion. Discuss career aspirations. Discuss short-term and long-term personal and employment goals. Discuss various methods to best prepare for performance evaluations. Identify most effective methods to receive and give feedback during a performance evaluation. Make suggestions for changes or improvements in job performance. Make a complaint and suggest several solutions. Respond to complaints about job performance. Discuss future training goals.	Training programs Job postings Job interviews Job evaluations Break time and meal time Machine set-up or breakdown Safety signs OSHA citations MSDS sheets	Use social language to talk about weather, sports, recreation, family activities, current events, etc. Answer questions about benefits Express likes and dislikes State goals Make suggestions Make complaints Identify promotion and performance procedures Discuss job performance	Use a Johari Window to discuss likes and dislikes about job with a co-worker Make an employment time-line Problem-posing Have workers draw "before" and "after" pictures of safety problems Have workers create safety slogans	Complete application for promotion Listen to description of safety problem from co-worker and offer solutions Ask and answer 5-7 question about future training plans Make 3-5 suggestions for job or work environment improvements Write a safety slogan and teach it to another person Distinguish between appropriate and inappropriate ways to make and respond to complaints

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcomes*
Reading and Writing Goals: Read and interpret a variety of work-related documents. Read and interpret training materials. Fill out application for promotion. Write short paragraphs on a variety of work-related topics.				
Read description of a problem and take appropriate action. Read standard operating procedures. Read job description. Read a memo and state main idea. Read a memo and make inferences. Scan a memo, announcement, or other work-related documents for specific information and vocabulary. Skim a work-related document to get the point of it. Read work-related documents for details. Use a dictionary to look up new words. Use a glossary to look up meaning of technical vocabulary. Write a short note to a co-worker or supervisor about a work-related problem. List job tasks in sequence. Write job instructions.	On-going problem solving Workplace forms Workplace documents Communication with supervisors Job postings Performance evaluations Benefit updates Work orders Trade articles Newspapers	Read technical and non-technical vocabulary Read for liter information Read for inferential information Understand main idea Read for critical comprehension Scan for information Skim for information Read columns and rows Read subcolumns and rows Use a table of contents to locate information Use a dictionary to find the meaning of a word Use a glossary to find the meaning of a word	Match vocabulary words with definitions Complete complex workplace forms Read in-house announcements, memos or newsletters and make inferences about company intentions or motives. Workers take turns asking and answering questions about information they have read Information gap activity to complete chart, graph, or table	Describe job duties using correct technical vocabulary (names of tools, equipment, measurement, etc.) Complete a complex or "new" benefit form accurately Read a work-related document and identify main idea Read a work-related document and identify details Read MSDS sheet and take appropriate action to resolve problem with materials

Learning Objectives	*Workplace Contexts*	*Basic Skills*	*Possible Activities*	*Outcomes*
Compare and contrast current job with past and/or future employment. Write a paragraph about future training plans. Write a paragraph describing job strengths and areas for improvement. Respond to a complaint in writing.	Training materials Training videos MSDS sheets	Use an index to find information Cross-reference information Read charts, graphs, and tables Write technical words Write abbreviations Write simple sentences Write complex sentences Write a paragraph Use correct punctuation and capitalization	Jigsaw reading Game: Teams compete against each other to see who can locate information in dictionary, benefit, or training manual the fastest.	Summarize benefits Use 7-10 technical words correctly in oral and written sentences Write a note to a supervisor requesting action related to an incident or complaint Write a note to a supervisor making a suggestion Complete a written application for promotion

The Appendix

A LEARNING STYLE INVENTORY FOR THE WORKPLACE

The ways in which our brains most successfully take in information are rooted in physical preferences. The three main sensory preferences are:

1. Auditory - learns best by listening and discussing
2. Visual - learns best by reading, examining, and seeing
3. Tactile/Kinesthetic - learns best by handling, touching, moving, doing, and experiencing

Everyone has sensory preferences. However, many people have a balance between two or three of the sensory modes. It is important for learners to know their preferences, so that they will know how to optimize their learning in the classroom and on the job. The following inventory may be used in a workplace classroom as an aid in determining the learning preferences of students.

Directions: Think about how you receive and retain information on the job while you read each of the following statements. Then place a check mark (✔) in the box that most accurately describes how you learn on the job.

1. When my supervisor gives me instruction, I usually remember more when:

   ☐ a. I listen closely
   ☐ b. I watch him speak
   ☐ c. I write it down

2. I usually solve problems at work by:

   ☐ a. Talking to myself or a co-worker
   ☐ b. Making a list or schedule
   ☐ c. Thinking while walking or pacing

3. When I can't write down an order number, I remember it by:

   ☐ a. Repeating the number aloud
   ☐ b. "Seeing" or "imagining" the number in my mind
   ☐ c. "Writing" the numbers with my finger on a table, wall, or in the air

4. I find it easiest to learn a new task on the job by:

   ☐ a. Listening to someone tell me how to do it
   ☐ b. Watching someone else do it
   ☐ c. Doing it myself

5. What I remember most from a training video is:

☐ a. What the people said to each other
☐ b. Where the training was and what it looked like
☐ c. How I felt when I watched the video

6. When I go to a department meeting, I:

☐ a. Need to repeat the information to myself
☐ b. Need to read the information
☐ c. Need to write the information down

7. When I need to remember job instructions, I:

☐ a. Listen carefully to the instructions as they are read
☐ b. Try to "see" the instructions in my mind
☐ c. Try to make my own diagram or summary of the instructions

8. I like to learn new things at work by:

☐ a. Listening to someone tell how it is done
☐ b. Reading about how it is done
☐ c. Seeing someone do it

9. If I am confused about what a word means, I:

☐ a. Listen to someone use it in a sentence
☐ b. Look it up in a dictionary
☐ c. Ask a co-worker or supervisor what it means

10. What I like to read is:

☐ a. Stories that have a lot of conversation
☐ b. Stories that have lots of descriptions of people, places and events
☐ c. Stories with a lot of action

11. I usually remember people I have met by their:

☐ a. Names
☐ b. Faces
☐ c. Actions and expressions

12. It is hard for me to concentrate at work when I:

- ☐ a. Hear many different noises
- ☐ b. See many people and a lot of activity
- ☐ c. Feel too hot or too cold

13. I like to find out the latest news at work by:

- ☐ a. Hearing it from my supervisor or a co-worker
- ☐ b. Reading a bulletin board or memo
- ☐ c. Walking around and checking it out myself

14. At work I like it best when I:

- ☐ a. Talk to my co-workers
- ☐ b. See different people
- ☐ c. Work with machinery, computers and office equipment

15. When I have to learn something for my job, I:

- ☐ a. Memorize the steps in the order I will do them
- ☐ b. Try to see how to do it in my mind
- ☐ c. Actually do the job

SCORING

Count the total number of answers you have for each letter and write them below

a._____Auditory learner: learns best by listening and discussing

b._____Visual learner: learns best by viewing, examining and reading

c._____Tactile/Kinesthetic learner: learns best by handling, touching, moving, doing and experiencing.

Your highest total indicates your perceptual learning preference. Your next highest total indicates another strong preference, especially if the numbers are close.

STRATEGIES TO HELP YOU LEARN AND REMEMBER

For the **auditory** learner:

- Teach someone else what you have learned
- Summarize what you want to learn aloud or to someone else
- Quiz yourself out loud or ask someone else
- Try a solution to a problem verbally before doing it
- Ask your supervisor or co-worker to give you verbal explanations or directions
- Find a co-worker with whom you can discuss directions, explanations, instructions, etc.

For the **visual** learner:

- Take notes during meetings
- Write summaries in your own words of procedures, explanations, etc.
- Write down oral instructions
- Read directions silently instead of out loud to gain maximum understanding
- Highlight important details in written instructions, procedures, memos, etc.
- Make lists of things you need to remember to do
- Try to get a mental picture of what you are reading or listening about in a meeting to better retain this verbal information
- Ask supervisors or co-workers to provide models of successful procedures, completed products, and written work to better understand company expectations

For the **tactile - kinesthetic** learner:

- Manipulate or assemble objects, materials, or models
- Draw, underline, and highlight written instructions
- Make your own diagrams, charts, time lines, or summaries using your own words
- Break up your learning time into manageable time blocks, if possible
- Take short breaks to stretch and move around
- Tap a pencil, finger, or foot while you are trying to learn a new procedure

A SAMPLE LESSON PLAN

The following example is from a Communication Skills I - Focus on Reading class (page 69). The goal and learning objectives are customized to fit the needs of the students in the class. The location of additional topics and ideas appropriate for that section is italicized.

GOAL: Locate and comprehend product information from company material.

- *All course outlines - pages 59-101*

LEARNING OBJECTIVES: (1) Locate specific information on a new company product. (2) Recognize and interpret company specific words, abbreviations, and acronyms. (3) Distinguish between important and unimportant information as it relates to the new product. (4) Locate new non-technical vocabulary in a dictionary.

- *All course outlines - pages 59-101*

INSTRUCTIONAL ACTIVITIES: (1) Highlight or underline company specific words, abbreviations, and acronyms. (2) Locate and define new vocabulary words using a dictionary or context clues. (3) Create a list of yes/no and short answer questions which elicit information found in the newsletter article on the new company product. (4) Prepare a list of true/false statements based on acquired information. (Use different groups for #3 and #4 and exchange lists to answer)

- *Instructional Methods and Approaches - pages 18-34*
- *Multilevel Classes - pages 41-44*
- *Cross-cultural Communication - pages 47-48*
- *Transfer of Skills to the Workplace and Beyond - pages 50-51*
- *All course outlines - pages 59-101*

INSTRUCTIONAL MATERIALS: (teacher-made, textbook, curriculum, workplace documents - please attach) Company newsletter article on a new company product. Dictionary. Text: Reading Skills for Life and Work, pages 28-31.

- *Authentic Materials for Instruction - pages 38-40*
- *All course outlines - pages 59-101*

REFLECTIVE COMMENTS: Students enjoyed using highlighters especially the visual and tactile learners. Some students had difficulty "creating" the questions for the article, but stated that it made them use "their brains in a different way". Overall, good lesson!

More Workplace Activities....

The following successful activities are offered by instructors in workplace classes.

From **Becky Sitz**, ESL instructor, General Metals...

"I found that the students in my ESL at Work 3 class were very reluctant to do any writing. One of our course objectives was to ask and respond to 'wh' questions in the workplace and this tied in with a need at General Metal Products. The company wanted the employees to be able to fill out certain forms on which they needed to answer several 'wh' questions.

In an effort to get the students comfortable with working with "wh" questions, we first constructed living "wh" question sentences. To do these, divide "wh" questions into individual words, or phrases for very beginning students, and write these on index cards. If a sentence has 6 cards, then call up 6 students to the front of the class and give each student a card in random order. The remaining students in class then tell the card holders where to stand to put the words in the correct order. This technique tends to be non-threatening for students as they can easily move people around until the sentence sounds right. I started with short sentences and gradually added more words.

After the living sentences, the students matched up "wh" questions and answers with pictures that they had taken of themselves in the workplace. Then the students, working in pairs, were asked to write a new "wh" question and answer for each picture. Each group wrote their questions and answers on an overhead transparency and these were shared with the rest of the class. The whole class then had an opportunity to comment on the clarity of the sentences and suggest any changes that would make the sentences better."

From **Sara Vandenberg**, ESL instructor, Nichols Aluminum...

"Warm-up with a series of pictures that portray the separate, sequential actions of a task. Have the students put the pictures in order and describe what is in each picture. This works well with small groups or pairs. I've used Action English pictures for this warm-up. Review stories with whole group.

Next, group students by type of job they perform. Have them list the order of steps in performing a discreet task. This is good for the cognitive skill of understanding sequence and understanding what steps comprise a task. Students can generate a checklist that can be used in job performance, posted on machinery, or used in training. Prompt students for completeness and for inclusion of quality control and safety precautions."

"Begin the lesson with a review of phonic rules of long/short vowel sounds. Next give the students a quality control form used on bad products. These are called Hold Tags. Review the different sections of the form, what they were for, and what vocabulary is peculiar to the sections requiring descriptions. Create a poster of terms relating to flaws and damaged goods. Then assign each student a set of terms to use in a fictitious Hold Tag. Students work as a group coaching the writer to the best possible description. Next, they take turns writing, starting with the most proficient. Finally, the students look at spellings relating to the long/short vowel sounds and check all sample descriptions."

From **Wynn Crombie**, Communication Skills I instructor, Baxter Healthcare...

"This is a role play entitled 'Your Assignment: Train the New Employee - What Would You Do?' The class is divided into small groups and each group represents a specific job at Baxter. New employees have arrived for their first day on the job. What would you tell them? Anticipated questions may be created using the employee handbook. A flow chart may be written to show a time line or explain the company floor plan. This activity has great potential in a communications class!"

From **Barbara Rhodes**, ESL instructor, Nichols Aluminum...

"This activity is titled 'Job Description Dice Game'. Use half sheet of construction paper. Fold the half sheet in half in order to create a booklet. On each side paste a list of job titles. A list of 6 to 8 works well. You also need dice. Divide the class into pairs. Give each pair a booklet and one die. One student rolls the die and describes the job that corresponds with that number on the die. The other partner takes a turn."

"This activity is called 'Scrambled Cards'. It is based on the corporation's annual report - key products section. Students are divided into two groups. Each group is given a set of cards containing categories and products. Cards are out of order. Each group must arrange cards according to categories and corresponding products."

"The following activity uses the company's attendance policy. Copies of the policy are given to the students to read. Vocabulary words are listed and defined. An activity sheet is created using the following types of questions and statements:

- fill in the blank
  Example: This attendance policy provides guidelines for achieving good attendance results and for _____progressive corrective action for _____attendance.
- definitions
  Example: Mario is tardy to work three times. He left work one hour early. He reported absence two different times. Each of these instances would be called an _____.
- short answer
  Example: After reviewing the above examples, who would have a Counseling Interview? Why?
- true or false
  Example: T/F Occurrences are accumulated for a 12 month calendar year.

Students can work individually, in pairs, or in groups. A great activity that can also be used in a communication skills class."

From **Geoff Cummins**, ESL instructor, Maclean Fogg...

"Students are given a copy of the audit plan for Cold Nut Forming and asked to read the information. Vocabulary words are identified, listed, and defined. Students are divided into two small groups or pairs and take turns asking and answering questions contained in the handout. After the students have shown capability to answer most of the questions, a certified auditor for the company comes in and conducts a mock audit."

"Students view pictures taken at Maclean Fogg and question, discuss, and describe what is happening in each picture. They also discuss who is performing the job, what is their job title and responsibilities, and identify safety problems or other mistakes occurring in the pictures."

From **Rosalie Campeau**, Communication Skills and Workplace Math instructor, Baxter Healthcare...

"Videos are an excellent material source to use for the note taking skills' goal in the writing course. Several videos are available through the grant and in some instances the company will have safety or instructional videos that can be used in the class."

Instructional Guide for Basic Blueprint Reading

TOPICS

- Basic views of objects
- Meaning of lines
- Dimensioning conventions
- Decimal tolerances
- Precision measuring
- Blueprint terms and symbols - Title Block/Note column
  Symbols
- Metric units and customary units
- Measuring angles

MATERIALS

- company blueprints
- company parts that correspond to the blueprints
- digital calipers and other measuring tools used in the company
- calculator, if used

TOPIC	LEARNING OBJECTIVES	TERMS\VOCABULARY	OUTCOME
Basic views	a) Identify the basic views commonly displayed in a technical drawing b) Measure the height, width, depth of a simple object c) Name the three principle views necessary to describe the shape of an object	Height Width Depth Plane	Draw a sketch of a simple object using two or three views on cross-sectioned or plain paper
Meaning of lines	a) Describe the commonly used lines on a blueprint b) Identify the meaning of commonly used lines in a blueprint	Object or visible line Hidden line Center line Dimension line Extension line Projection line	Identify the lines in a simple blueprint and match them with their meaning
Basic Dimensioning Conventions	a) Name and describe the two ways a blueprint gives a complete description *Views* and *Dimensions and Notes* b) Identify the difference between a dimension line and the visible lines of the drawing	Extension line Dimension line Center line Leader	Identify the four basic lines used in dimensioning on a blueprint

TOPIC	LEARNING OBJECTIVES	TERMS\VOCABULARY	OUTCOME
Decimal Tolerances	a) Define tolerance b) Add and subtract decimal tolerance attached to a measurement in order to determine upper and lower limits of size. (Example - 1.765 +/- .005) c) Sequence decimal measurement. d) Determine if a product measurement lies within tolerance	Tolerance Upper limit Lower limit Sequence	Add and subtract decimal tolerance on a measurement in order to determine upper and lower limits.
Precision Measuring	a) Identify the common measurement tools used in the company. b) Identify the graduation on the scale of each measurement tool. c) Determine the size of the smallest division in one interval on a measurement tool. d) Label scale marking on a measurement tool. e) Read and record a specific dimension on a measuring tool. (If digital calipers are used, practice reading and recording the displayed measurement.)	Scale markings Graduations Calipers Rules Squares	State and record decimal measurement of a product using an appropriate measuring tool.
Blueprint Terms - Title Block	a) Locate the title block on a blueprint. b) Describe each piece of information contained within the title block.	Title block Drawing title Drawing number Scale Tolerance Materials	Describe each piece of information contained within the title block of a blueprint.
Blueprint Symbols	a) Define GD&T (Geometric Dimensioning and Tolerancing) as a technical drawing language which specifies design requirements in terms of function. b) Identify commonly used symbols and their corresponding characteristics such as // means parallelism. c) Locate the box (*feature control frame*) in which the symbols appear.	GD&T Symbols commonly used in company blueprints Symbol characteristics Feature control frame	Identify symbols and their characteristic in various feature control frames.

TOPIC	LEARNING OBJECTIVES	TERMS\VOCABULARY	OUTCOME
Metric Measurement	a) Define and explain metric length units	Length Customary Units Metric Units Meter Millimeter Centimeter Decimeter	Given a product measurement in U. S. Standard, convert to metric measurement or vice versa.
	b) Demonstrate how metric units are related to corresponding customary units.		
	c) Explain how to convert from one unit to another.		
	d) Convert customary units to metric measure and vice versa.		
	e) Identify customary and metric measurements on a blueprint.		
Measuring Angles	a) Define angle as two lines starting at the same point and extending outward.	Angle Vertex Sides Degrees Protractor	Use a protractor to measure given angles. Use a protractor to draw given angles.
	b) Explain that angles are measured in degrees and that a protractor is a tool that measures angles.		
	c) Use a protractor to measure an angle.		
	d) Using a ruler and protractor, draw a given angle.		

More Assessments...

Many instructors expressed a desire to see examples of possible course-based assessments in the revised edition of the curriculum. The following examples are from actual assessments used in the workplace classrooms.

Reading Goal: Read instructions to complete a task.
Objectives: Read and complete appropriate sections on a SPC chart.
Read a SPC chart and take appropriate action
Type of assessment: Pencil and paper test Instructor: Becky Sitz

"Know your SPC's!"

(SPC form assessment)

Mauricio is a brake press operator. He is working on a part for Motorola. The part number is XXXXX-456. Use today's date. The GMP part number is YYYYYY-123. The description "rod guide" and the job number 789 The characteristic is 3.425 + .010. The operation is coil forming and the machine number is 205.

The measurements for sample 1:

3.424
3.422
3.426
3.423
3.435

The measurements for sample 2:

3.425
3.429
3.427
3.419
3.423

The measurements for sample 3:

3.424
3.426
3.428
3.426
3.423

Figure the sum and average for the 3 samples and plot the averages on the chart. Also figure the range and plot that in the range area.

Are there any problems with the measurements? If yes, what should you do?

(The S.P.C. Production Work Sheet is attached to this assessment for the student to complete)

Listening and Speaking Goal: Make and respond appropriately to requests.
Learning Objectives: Ask questions about job tasks, procedures, or company information
Make and respond to simple requests
Ask for clarification about job requests
Type of assessment: Pen and paper test

"Could you help me, please?"

(The polite request assessment)

Directions: Change the imperative instructions below into polite requests.

1. Hand me that tool.
2. Fill out an SPC form.
3. Give me a vacation request form.
4. Don't talk too much on the line.
5. Listen to me.
6. Redo that part.
7. Get me a drink.
8. Wait until break time.
9. Write your name on this line.
10. Put the screwdriver over there.

Listening and Speaking Goal: Discuss job duties.
Learning Objectives: Make and answer questions about job tasks.
Ask for clarification about job tasks.
Type of Assessment: Demonstration (oral) Instructor: Becky Sitz

"What's My Job?"

(The job title assessment)

Student A: _____, where do you work?

Student B: At General Metal Products, why do you ask?

Student A: I'm out of work and need a new job.

Student B: Oh, I see.

Student A: What kind of work do you do at GMP?

Student B: I am a _____.
Job title

Student A: What does a _____ do?
Job title

Student B:

_____
Job description

Student A: I see. Could you give me more information about your job responsibilities?

Student B: Sure. I _____(job duties)
_____
_____
_____
_____

Student A: Thanks for the information!

Student B: You're welcome and good luck finding a job!

Did the student speak clearly? _____yes _____no
Did the student speak slowly _____yes _____no

Listening and Speaking Goal: Report problems.
Learning Objectives: Make requests politely
Ask for clarification
Report problems encountered when completing a task.
Type of assessment: Role play Instructor: Becky Sitz

"I Think Something is Wrong"

This is a role play. The student is given a possible scenario and must respond. The criteria for this assessment is listed below.

Student — A piece is brought to you for inspection. A hole was punched in the piece according to the size on the blueprint, But the blueprint hole size differs with the size on the process sheet.

_____1. Used appropriate vocabulary

_____2. Request was asked politely

_____3. Pronunciation was intelligible

_____4. Student understood the context of the role play

_____5. Asked for clarification

_____6. Asked appropriate person for help (where applicable)

Writing Goal: Write a short note or simple memo about a request or workplace incident.
Learning Objective: Apply the five guidelines for writing messages
Type of Assessment: Writing profile Instructor: Wynn Crombie

"Thanks for the Memos"

(A memo/short note writing assessment)

Directions: Read the following paragraph. Write a note to the appropriate person using the quidelines for writing messages.

You are working late one day. It is around 6:30 P.M. on August 10. Everyone else has gone home for the day. Mr. Thomas O'Hare calls. He is from Universal Cleaning Products, one of your big suppliers. He needs to cancel an important meeting with your boss, Ms. Gloria Midway. The meeting was supposed to be at 8:30 A.M. the day after tomorrow. He wants Ms. Midway to call him back tomorrow to set a new time for the meeting. His phone number is (614) 686-2345.

Criteria:
Did the message include:

1. Who called?	_____*yes*	_____*no*
2. When they called? (date and time)	_____*yes*	_____*no*
3. Their phone number?	_____*yes*	_____*no*
4. The message?	_____*yes*	_____*no*
Main idea in first sentence of message	_____*yes*	_____*no*
All pertinent facts included	_____*yes*	_____*no*
Message written in clear sentences	_____*yes*	_____*no*
Words spelled correctly	_____*yes*	_____*no*
5. Who gets the message?	_____*yes*	_____*no*

Reading and Writing Goals: Locate information on workplace documents and forms.
Fill in documents or forms with correct information.
Read and interpret work-related documents.

Speaking and Listening Goals: Discuss job tasks.
Give and follow oral instructions to complete a task.
Ask and respond to questions about a task

Type of Assessment: Presentation Instructor: Becky Sitz

The following assessment represents the criteria by which students were evaluated during a presentation. The students instructed their co-workers in the correct procedure for filling out a particular work place form called a Suspect Material Report.

Suspect Material Report
(Presentation Evaluation)

Name _____

Communicated to fellow employees:

1) Purpose of the SMR	1 2 3 4 5 6 7 8 9 10
2) Definition of SMR	1 2 3 4 5 6 7 8 9 10
3) How to complete the SMR	1 2 3 4 5 6 7 8 9 10
4) Referred to the process sheet to indicate where to find needed information	1 2 3 4 5 6 7 8 9 10
5) Employee actions for the SMR	1 2 3 4 5 6 7 8 9 10
6) Where to get an SMR	1 2 3 4 5 6 7 8 9 10
7) Who gets the completed SMR	1 2 3 4 5 6 7 8 9 10
8) How to identify a GMP part #	1 2 3 4 5 6 7 8 9 10
9) Spoke clearly	1 2 3 4 5 6 7 8 9 10
10) Asked for and answered any questions	1 2 3 4 5 6 7 8 9 10

Total score _____

CROSS REFERENCE OF COURSE GOALS WITH JOB CATEGORIES

The following chart is a composite of the information gathered during the initial company site visits and interviews. The chart's purpose is to display the link between job categories as defined in the grant and the course goals. Although each company has its own special duties for each job category, this generalized chart gives the instructor a ***base*** from which to customize a course for a particular student or group of students based on their job.

Course Goals	***Machine Operator***	***Mechanic***	***Machinist***	***Shipper/ Receiver***
WORKPLACE MATH I				
Goal 1: Read, match, count, and compare whole numbers on product and work order.				✔
Goal 2: Add, subtract, and multiply whole numbers to determine quantity of company product.				✔
Goal 3: Add, subtract, multiply, and divide whole numbers to fill out a time card.	✔	✔	✔	✔
Goal 4: Add and subtract fractions or decimals on specifications or drawings to calculate upper and lower control limits (tolerance) and determine if product is within those limits.	✔	✔	✔	
Goal 5: Read and record fractional or decimal measurement of a product using an appropriate measuring tool.	✔		✔	✔
Goal 6: Convert fractional measurement of product to decimal equivalent and vice versa.	✔		✔	✔
Goal 7: Read and interpret company charts, graphs, tables, and/or diagrams.	✔	✔	✔	✔
WORKPLACE MATH II				
Goal 1: Perform arithmetic with fractional and/or decimal measurement numbers used in the company.	✔	✔	✔	✔
Goal 2: Convert from U.S. standard to metric measure and vice versa using company product specifications.	✔		✔	
Goal 3: Read, convert, and record direct measurement where the numerical reading is displayed on some sort of scale.	✔		✔	

Course Goals	*Machine Operator*	*Mechanic*	*Machinist*	*Shipper/ Receiver*
Goal 4: Solve problems involving ratio and proportion to determine machine downtime and scale drawings.	✔	✔	✔	
Goal 5: Determine percentage of any of the following workplace situations: waste, downtime, shrinkage, efficiency of a process or a machine, percent increase or decrease of a company process.	✔		✔	
Goal 6: Using the relationship of geometric principles, basic algebra and measurements, determine perimeter, area, and weight of a company product.	✔		✔	
COMMUNICATION SKILLS I - Focus on Reading				
Reading Goal 1: Locate and comprehend product information on a work order.	✔			✔
Reading Goal 2: Read and comprehend written work instructions from a supervisor or team leader.	✔	✔	✔	✔
Reading Goal 3: Read and comprehend company safety standards and procedures.	✔	✔	✔	✔
Reading Goal 4: Read and interpret employee handbook and/or company policies.	✔	✔	✔	✔
Reading Goal 5: Read and interpret company schedules, charts, and graphs.	✔	✔	✔	✔
Reading Goal 6: Evaluate the accuracy of written sequential standard operating procedures and/or job descriptions.	✔	✔	✔	✔
Listening and Speaking Goal 7: Listen to and comprehend instructions from supervisor or co-worker.	✔	✔	✔	✔
Listening and Speaking Goal 8: Give directions to team members or co-workers.	✔	✔	✔	✔
Listening and Speaking Goal 9: Get information from supervisor, team leader, or co-worker.	✔	✔	✔	✔
COMMUNICATION SKILLS II - Focus on Writing				
Writing Goal 1: Fill in date, time, and other requested information on work forms.	✔			✔

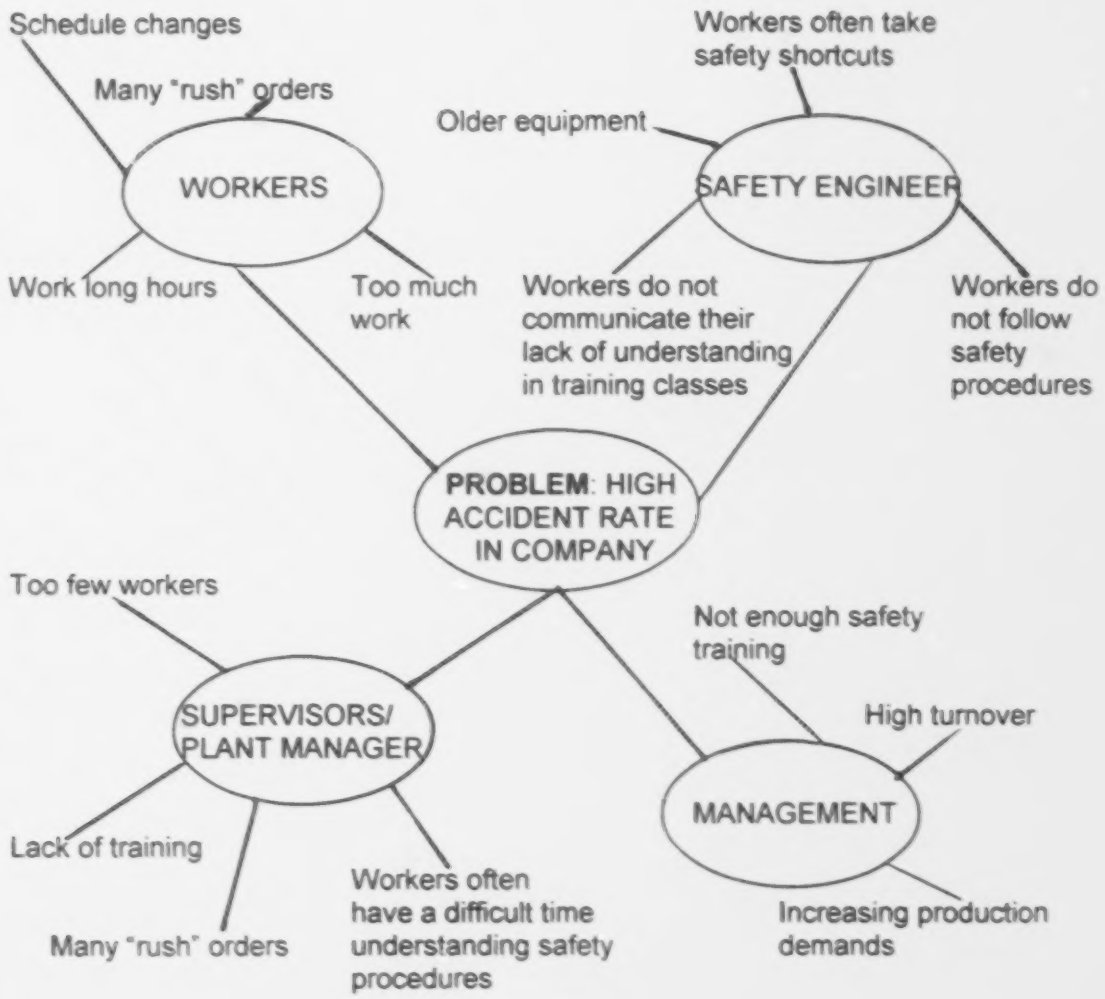
Course Goals	*Machine Operator*	*Mechanic*	*Machinist*	*Shipper/ Receiver*
Writing Goal 2: Apply note-taking skills in a training session and/or meeting.	✔	✔	✔	✔
Writing Goal 3: Write a short note or simple memo about a request or workplace occurrence.	✔	✔	✔	✔
Writing Goal 4: Write a descriptive paragraph of a workplace event or situation.	✔	✔	✔	✔
Writing Goal 5: Write a sequential job procedure.	✔	✔	✔	✔
Writing Goal 6: Organize information into a written report.	✔	✔	✔	✔
Listening and Speaking Goal 7: Apply appropriate discussion techniques in a team or group meeting.	✔	✔	✔	✔
PROBLEM SOLVING IN THE WORKPLACE				
Goal 1: Understand problem solving as a process.	✔	✔	✔	✔
Goal 2: Recognize and identify problems in the work environment.	✔	✔	✔	✔
Goal 3: List and discuss the interpersonal skills necessary for successful team approach projects in the workplace.	✔	✔	✔	✔
Goal 4: Define a workplace problem using a team project-based approach.	✔	✔	✔	✔
Goal 5: Generate and verify possible causes of the problem.	✔	✔	✔	✔
Goal 6: Identify and evaluate alternative solutions to the problem.	✔	✔	✔	✔
Goal 7: Create an action plan to implement the solution to the problem.	✔	✔	✔	✔
ESL AT WORK - Level I				
Listening and Speaking Goals: Provide personal information orally. Make and respond to greetings.	✔	✔	✔	✔
Discuss job duties, tool, and equipment. Give and respond to safety warnings.	✔	✔	✔	✔
Reading and Writing Goals: Decode workplace forms. Recall information.	✔	✔	✔	✔

Course Goals	*Machine Operator*	*Mechanic*	*Machinist*	*Shipper/ Receiver*
Construct meaning from workplace materials. Complete simple workplace forms.	✔	✔	✔	✔
ESL AT WORK - Level 2				
Listening and Speaking Goals: Give and follow oral instructions to complete a task. Report problems. Respond appropriately about one's work.	✔	✔	✔	✔
Reading and Writing Goals: Scan workplace texts for specific information.	✔	✔	✔	✔
Read instructions to complete a task or explain a procedure. Write a workplace note or memo.	✔	✔	✔	✔
Write instructions to complete a task or explain a procedure. Fill in simple charts and graphs.	✔	✔	✔	✔
ESL AT WORK - Level 3				
Listening and Speaking Goals: Identify workplace-related problems and discuss possible solutions.	✔	✔	✔	✔
Paraphrase workplace instructions. Describe the process for promotion and discuss abilities and strengths.	✔	✔	✔	✔
Reading and Writing Goals: Read and interpret a variety of work-related documents. Read and interpret training materials.	✔	✔	✔	✔
Fill out application for promotion. Write short paragraphs on a variety of work-related topics.	✔	✔	✔	✔

EXAMPLE OF A WORKPLACE PROBLEM MAP

A problem map is a graphic representation of a problem the students are to explore. Similiar to concept mapping, problem mapping begins with the main idea or ***problem*** in the center. Students define ***supporting ideas*** based on the problem and connect them to the problem with lines. Next, they define and identify ***supporting details*** for each secondary idea and arrange them around the appropriate secondary idea.

The following example shows a ***workplace problem*** the students have identified. The ***secondary ideas*** are defined stakeholders (people or departments) involved in the problem. The ***supporting details*** are causes of the problem as defined by each stakeholder.



SUGGESTIONS FOR A FUNCTIONAL-CONTEXTUAL APPROACH TO A GED PREPARATION CLASS IN THE WORKPLACE

There are many ways of teaching a GED preparation class, but teaching a GED class in the workplace presents many unique challenges. Teachers in the workplace must not only teach the skills and content necessary to pass the GED test, but they must also be aware of how to teach it in the context of the workplace and the larger community.

Industries need employees who can master the basic skills required to pass the GED and transfer them to specific workplace scenarios, especially the ability to think critically, recognize cause and effect, and solve problems. These applications also carry beyond the classroom and workplace to the community, creating active citizens. With *functional-contextual instruction*, the focus is on teaching the skills in relation to their actual use in the workplace, as well as in the community. Certain areas of a GED preparation course lend themselves to a functional-contextual approach. The following chart provides a list of these areas and some examples of meaningful workplace contexts. This is by no means an exhaustive list, but merely a sampling of some functional workplace contexts.

EXAMPLES OF FUNCTIONAL CONTEXT FOR WORKPLACE GED CLASSES

Reading and Critical Thinking Skills: Reading and thinking skills are necessary to understanding the questions in the Social Studies, Science, and Interpreting Literature and the Arts sections of the GED test. The written passages in these sections will be up to 150 words with two or more questions that emphasize the critical thinking skills of comprehension, application, analysis, and evaluation.

Comprehension Skill: Restating of a sentence or idea
Workplace Context: Reading a notice or memo on the company bulletin board for information

Comprehension Skill: Summarizing a piece of writing.
Workplace Context: Reading written work instructions to determine the most important details

Comprehension Skill: Comprehending text on a literal level.
Workplace Context: Reading safety policies to understand the description of a safety procedure

Comprehension Skill: Comprehending text on a inferential level.
Workplace Context: Using reasoning and experience to infer what could happen if safety procedures are not used

Application Skill: Using given ideas in another context
Workplace Context: Applying problem solving strategies (define problem, find cause of problem, brainstorm alternative solutions, and evaluate alternatives for viable options) to a production problem, such as poor communication between shifts

Analysis Skill: Analyzing an author's reasoning by separating facts from opinions in a piece of writing
Workplace Context: Separating facts from opinions in a memo that documents a machine breakdown or safety accident

Analysis Skill: Recognizing cause and effect
Workplace Context: Describing an individual's work in the context of other employees work and in relation to the final product, anticipating consequences of an employee's actions on the job

Evaluation Skill: Judging the adequacy of facts
Workplace Context: Judging the accuracy, appropriateness, and plausibility of a new standard operating procedure (SOP), or reviewing a current SOP for accuracy

Reading, Interpreting, and Applying Information on Charts, Tables, and Graphs:
A number of questions on the GED Social Studies, Science, and Mathematics tests require reading and understanding information presented graphically or pictorially.

Skill: Reading tables, charts, graphs and maps
Workplace Context: Examining different graphs, charts, and schedules used in the company

Skill: Interpreting and applying information on a table, chart, graph, or map
Workplace Context: Computing, drawing conclusions, making inferences, or making predictions based on information in a company graph, industry publication, local newspaper, or magazine.

Writing Skills: The GED Writing Skills test consists of two parts. The first part tests knowledge of English grammar, and the second part tests the ability to write an original essay. The writing sample topic asks for an opinion about an issue or situation familiar to adults. The composition explains and defends a point of view.

Writing Skill: Informative writing
Workplace Context: Filling out an accident report

Writing Skill: Persuasive writing
Workplace Context: Writing a brief essay describing one's qualifications for a new job or a promotion within the company

Math Skills: The GED Mathematics test focuses on the basic concepts of the three areas of mathematics: arithmetic, algebra, geometry. In all three areas the basic arithmetic operations of addition, subtraction, multiplication, and division are used. Knowing which operation to use in solving a problem, estimating an answer, and determining which answer makes sense are also essential concepts.

Arithmetic Skill: Using whole numbers
Workplace Context: Calculating the total amount of product to be shipped

Arithmetic Skill: Using and applying fractions and decimals
Workplace Context: Measuring products with a ruler, recording measurement, converting to decimal equivalent, and comparing to specifications

Arithmetic Skill: Using and applying percents
Workplace Context: Calculating amount of a pay raise or percentage of pay taken out for benefits, taxes, and other deductions

Arithmetic Skill: Using ratio and proportion
Workplace Context: Calculating the amount of down time for a machine or process

Arithmetic Skill: Using measurement
Workplace Context: Identifying metric measure on blueprints and converting to U.S. standard measure

Algebra Skill: Solving equations
Workplace Context: Calculating the weight per foot of a product, finding the missing dimension on a simplified blueprint, or determining the standard deviation of production data used in a statistical process control (SPC) chart

Geometry Skill: Solving formulas
Workplace Context: Calculating the perimeter, area, and volume of product

Geometry Skill: Calculating angles
Workplace Context: Calculating angles on a simplified blueprint

Geometry Skill: Using congruence and similarity
Workplace Context: Creating scale drawings of company products

Geometry Skill: Using the Pythagorean Theorem
Workplace Context: Calculating the distance between three holes drilled into a steel plate that are in a right triangle formation (In manufacturing industries, machinist often use right triangle trigonometry; consequently, ability to use the Pythagorean Theorem is essential.)

Tips for the Workplace Instructor

1. Acquire authentic materials for lessons, such as:
- Time sheets and logs
- Paychecks with pay stubs
- Trade publications
- Advertisements and special promotions
- Purchase orders, work orders, and order forms
- Invoices
- General work contracts
- Warranties
- General communication memos and forms
- Message forms
- Workplace safety handbooks
- The employee handbook
- Benefits package from personnel or employee handbook
- IRA or Keogh forms from personnel
- Bank brochures and fliers (for community transfer of learning activities)
- Credit applications (for community transfer of learning activities)
- Work procedure manuals or standard operating procedures

- Company policy manuals
- Company-specific or generic measurement conversion charts or tables
- Digital and/or spring scale weight scales
- Wire, air pressure, or water pressure gauges
- Job descriptions

2. If you are unable to acquire a product, form, document, or resource, create a drawing of one.

3. Ask the students for examples from their jobs.

4. Apply and reinforce critical thinking skills whenever possible.

5. Always try to connect the skill being taught in a GED preparation class to a workplace situation or a real-life situation. Be ready with a contextual answer to the question "Why do we have to know this?" The fact that they need to know it for the GED test and for their jobs increases motivation.

6. A workplace or real-life "problem of the day" is always a good review or introduction to the day's lesson. It also encourages use of problem-solving skills.

7. A good technical math book is a valuable resource for teaching the math skills in a workplace context.

CORRELATION OF JOB TASKS TO BASIC-SKILL AREAS

Jobs and Their Tasks	Basic Skills					
Machine Operators' Tasks	Reading	Writing	Listening	Speaking	Math	Problem Solving
Setting up machine	✓	✓	✓	✓	✓	✓
Selecting, position, and securing fixtures	✓		✓	✓	✓	✓
Selecting and using measuring equipment	✓	✓		✓	✓	✓
Locating reference points via blueprint and calculations	✓	✓			✓	
Adjusting controls to specifications	✓				✓	✓
Reading and interpreting worksheets/orders	✓	✓			✓	
Inspecting for quality	✓	✓	✓	✓	✓	✓
Troubleshooting	✓	✓	✓	✓	✓	✓
Precision measuring	✓	✓			✓	
Participating on a quality management team	✓	✓	✓	✓	✓	✓
Charting assurance	✓	✓			✓	✓
Analysis and evaluating assurance	✓	✓	✓	✓	✓	✓
Problem-solving	✓	✓	✓	✓	✓	✓
Mechanics' Tasks						
Inspecting, repairing, and maintaining parts	✓	✓	✓	✓	✓	✓
Following blueprints and specifications	✓				✓	

Jobs and Their Tasks	Basic Skills					
Mechanics' Tasks (continued)	Reading	Writing	Listening	Speaking	Math	Problem Solving
Selecting appropriate tools	✓			✓	✓	✓
Installing, repairing, and testing equipment	✓		✓	✓	✓	✓
Diagnosing malfunctions/breakdowns	✓	✓	✓	✓	✓	✓
Deciding if source of problem is electrical or mechanical						✓
Dissembling and overhauling engines	✓		✓	✓	✓	✓
Grinding and resetting valves					✓	✓
Lubricating moving parts						✓
Fabricating special parts	✓	✓			✓	✓
Planning, executing and evaluating quality control measures	✓	✓	✓	✓	✓	✓
Planning preventative maintenance	✓	✓	✓	✓	✓	✓
Doing rebuilding and renovating projects	✓	✓	✓	✓	✓	✓
Machinists' Tasks						
Studying blueprints and schematics	✓		✓	✓	✓	✓
Designing blueprints or sketches	✓	✓	✓	✓	✓	✓
Determining dimensions, tolerances, sequence, and set-up	✓	✓	✓	✓	✓	✓

Jobs and Their Tasks	Basic Skills					
Machinists' Tasks (continued)	Reading	Writing	Listening	Speaking	Math	Problem Solving
Measuring, marking, and scribing dimensions	✓	✓			✓	
Selecting, aligning, and securing fixtures and tools	✓		✓	✓	✓	
Calculating and setting controls	✓	✓			✓	✓
Evaluating production	✓	✓	✓	✓	✓	✓
Operating a CNC machine	✓	✓	✓	✓	✓	✓
Installing or repairing parts	✓		✓	✓	✓	✓
Planning, executing, and evaluating quality control measures	✓	✓	✓	✓	✓	✓
Shippers' and Receivers' Tasks						
Verifying and keeping records on incoming and outgoing shipments	✓	✓			✓	✓
Preparing items for shipment	✓	✓	✓	✓		✓
Comparing and identifying information	✓	✓	✓	✓		✓
Determining method of shipment	✓	✓	✓	✓		✓
Affixing shipping labels	✓					
Assembling containers	✓					
Posting weight and shipping charges	✓	✓			✓	
Maintaining inventory	✓	✓			✓	✓

Jobs and Their Tasks	Basic Skills					
Inspecting incoming shipments	✓	✓	✓	✓		
Shippers'/Receivers' Tasks	Reading	Writing	Listening	Speaking	Math	Problem Solving
Corresponding with others to rectify damaged goods	✓	✓				✓
Operating tier-lift truck	✓					
Gathering and disseminating information	✓	✓	✓	✓		
Responding to client needs or problems	✓	✓	✓	✓	✓	✓
Participating in meetings			✓	✓		✓

U.S. Department of Labor. *Dictionary of Occupational Titles*. Washington D.C., U.S. Government Printing Office

CHARACTERISTICS OF ADULT LEARNERS AND WORKPLACE LEARNERS

Adult learners:

- learn throughout their lives through personal, work, and societal forces.
- often doubt their ability to learn new things.
- often need encouragement to engage in learning activities.
- have a broad and rich reservoir of experience.
- learn what they consider important.
- tend to be self-directing.
- are generally motivated to learn by internal factors such as the need to acquire a new skill or make a decision.
- want to meet their educational goals as directly, quickly, and efficiently as possible.
- participate in educational programs for a variety of reasons.
- wish to be treated as individuals with the capacity to determine things for themselves.
- may need assistance in accepting responsibility for their own learning due to prior, traditional education experiences.
- may have biological impediments such as reduced visual and auditory capabilities.
- have established preferences for working in the classroom.
- may gain experience and knowledge without be directly aware of it.
- most often become involved in a learning situation by choice.

Adult workplace learners:

- are often motivated by job security or promotion potential.
- may be anxious due to perceived management expectations.
- need a safe learning environment.
- may be reluctant to ask for assistance or clarification.
- have pre-established group dynamics.
- have very limited learning time; learning effort is often restricted to classroom.
- have varied levels of literacy.
- often have progressed in work and life due to literacy survival skills.
- are motivated to attend classes for various reasons such as personal choice, work release, or management demands.
- need to feel that interactions in the classroom are confidential.
- need encouragement to engage in learning activities.

Bibliography

Askov, Eunice and Aderman, Betty. "Understanding the History and Definitions of Workplace Literacy." In Maurice C. Taylor, Glenda R. Lewe and James A. Draper, (eds) Basic Skills for the Workplace, Toronto, Ontario: Culture Concepts. pp. 7-20

Auerbach, Elsa. Making Meaning, Making Change. Boston, Massachusetts: University of Massachusetts, 1990.

_____ and Wallerstein, Nina. ESL for Action. Reading, Massachusetts: Addison-Wesley, 1987.

Bander, Robert G. Sentence Making. New York, NY: Holt, Rinehart and Winston, 1982.

Bassano, Sharon and Christison, Mary Ann. Community Spirit: A Practical Guide to Collaborative Language Learning. San Francisco, California: Alta Book Center, Publishers, 1995.

Baylis, Pauline and Thomas, Gail. English in the Workplace Competency Framework. Darlinghurst, NSW, Australia: 1994.

Bell, Jill. Teaching Multilevel Classes in ESL. San Diego, California: Dormac, Inc., 1988.

_____ and Burnaby, Barbara. A Handbook for ESL Literacy. Toronto, Ontario: O.I.S.E. Press, 1984.

Bourman, Ann. 61 Cooperative Learning Activities. Portland, Maine: J. Weston Walch. Publisher, 1989.

Braham, Barbara J. Decision Making Cincinnati, Ohio: South-Western Publishing Co., 1993.

_____. Problem Solving. Cincinnati, Ohio: South-Western Publishing Co., 1993.

Brems, Marianne. Working in English (Book 1 and 2). Chicago, Illinois: Contemporary Books, Inc. 1991.

Brown, Diane, Clark, Alfred T. Jr. and Schooley, Shirley. Effective English for Business Communication. Toronto, Ontario: Gage Publishing Ltd., 1982.

Burnaby, Barbara and Bell, Jill. "The Role of Literacy in Methods of Teaching English as a Second Language" in Taylor and Draper, pp. 185-195.

Bibliography

Burton, Jill. (ed.) Implementing the Leaner Centered Curriculum. Sydney, Australia: Macquarie University, 1987.

Capezio, Peter and More house, Debra. Taking the Mystery out of TQM. Hawthorne, New Jersey: Career Press, 1993.

Carnevale, Anthony P., Leila J. and Meltzer, Ann S. Workplace Basics Training Manual. San Francisco, California: Jossey-Bass Inc., 1990.

Cheek, Gerald D. and Campbell, Clifton. "Help Them Use What They Learn", (1994), Adult Learning, 5:4, pp. 27-28.

Citizenship and Immigration Canada, Ontario Region. Draft LINC Literacy Component for Draft LINC Curriculum Guidelines. Ottawa, Ontario: Government of Canada, 1994.

Dainow, Sheila and Bailey, Caroline. Developing Skills With People. Chichester, U.K.: John Wiley and Sons, Ltd., 1988.

Day, Richard D. (ed.) New Ways in Teaching Reading. Alexandria, Virginia: TESOL, Inc. 1993.

Deller, Sheelagh. Lessons from the Learner. Essex, England: Longman Group UK, 1990.

Dixon, Carol N. And Nessel, Denise. Language Experience Approach to Reading (and Writing). Englewood Cliffs, New Jersey: Prentice Hall, 1983.

Feuerstein, Tamar and Schcolnik, Miriam. Enhancing Reading Comprehension in the Language Learning Classroom. San Francisco, California: Alta Book Center, Publishers, 1995.

Ford, J. Kevin. "Defining Transfer of Meaning: The Meaning is in the Answers." (1994) Adult Learning, 5:4, pp. 22-23.

Gaber-Katz, E. and Watson, G.M. "Community-Based Literacy Programming- The Toronto Experience," in Taylor and Draper pp. 119-128.

Grabe, William and Stoller, Fredericka. "Concepts and Practice in Content-Based Instruction." (unpublished workshop handout). TESOL 1994, Baltimore MD.

Graham, Carolyn. Jazz Chants. New York: Oxford University Press, 1978.

Hamilton, Cheryl and Parker, Cordell. Communicating for Results. Belmont, California: 1990.

Bibliography

Hemphill, David, Pfaffenberger, Barbara and Hockman, Barbara. The Working Culture(Book 1).
Englewood Cliffs, New Jersey, 1989.

Higgins, James M. 101 Creative Problem Solving Techniques. Winter Park, Florida: New Management Publishing Co., 1994.

High, Julie. Second Language Learning through Cooperative Learning. San Juan Capistrano, California: Kagan Cooperative Learning, 1993.

Ioannou, Miria, Nore Gordon, Poulton, Brent, and Thompson, Sarah. "How to Assess Learners and Build Workplace Literacy Programs," In Maurice C. Taylor, Glenda R. Lewe and James A. Draper, (eds) , Basic Skills for the Workplace, Toronto, Ontario: Culture Concepts. pp. 131-146.

Joyce, Helen. Workplace Texts in the Classroom. New South Wales: Adult Migrant English Services, 1994.

Kagan, Spencer. Cooperative Learning. San Juan Capistrano, California: Resources for Teachers, Inc., 1994.

Kaplan, Ellen. Writing for the World of Work. New York, NY: Educational Design, Inc., 1993.

Kinsella, Kate. "Perceptual Learning Preferences Survey." In Joy M. Reid, (ed.) Learning Styles in the ESL/ EFL Classroom. Boston, Massachusetts: Heinle and Heinle, 1995., pp. 221-225.

_____. "Perceptual Learning Strengths." In Joy M. Reid, (ed.) Learning Styles in the ESL/ EFL Classroom. Boston, Massachusetts: Heinle and Heinle, 1995., pp. 225-231.

Knowles, Malcolm. Self-Directed Learning. Englewood Cliffs, New Jersey: Prentice Hall Regents, 1975.

Langenbach, Michael. "Towards a Workplace Literacy Curriculum Model", In Maurice C. Taylor, Glenda R. Lewe and James A. Draper, (eds) Basic Skills for the Workplace, Toronto Ontario: Culture Concepts. pp. 409-422.

Lawrence, Mary S. Writing as a Thinking Process. Ann Arbor, Michigan: The University of Michigan Press, 1977.

Little, Linda W. And Greenberg, Ingrid A. Problem Solving: Critical Thinking and Communication Skills. White Plains, NY: Longman Publishing Group, 1991.

Bibliography

Long, Michael H. And Richards, Jack C. Methodology in TESOL. Boston, Massachusetts: Heinle and Heinle, 1987.

Margulies, Stuart. Work Force Literacy Skills for Jobs 2000 (Books 1 and 2), New York, NY: Educational Design, Inc. 1990.

McGroaty, Mary. "Some Meanings of Communicative Competence for Second Language Students." TESOL Quarterly 18:2, June 1984, pp. 257-272.

Meenan, Avis. "Adapting Workplace Materials for Teaching ESL Students." In Maurice C. Taylor, Glenda R. Lewe and James A. Draper, (eds) Basic Skills for the Workplace, Toronto, Ontario: Culture Concepts. pp. 409-422.

Mohan, Bernard A. Language and Content. Reading, Massachusetts: Addison-Wesley Publishing Co., 1986.

_____. "Relating Language Teaching and Content Teaching." TEAL Occasional Papers, (1979), pp. 23-35.

Nagy, Luqman. "Needs Analysis for Vancouver Garment Factory Workers." TEAL Occasional Papers, (1982), Vol. 6, pp. 33-40.

Nash, Andrea, Cason, Ann, Rhum, Madeline, McGrail, Loren and Gomez-Sanford, Rosario. Talking Shop. Washington, D.C.: Center for Applied Linguistics, 1992.

Nunan, David. The Learner-Centered Curriculum. Melborne, Australia: Cambridge, University Press, 1990.

Ottoson, Judith M. "The Transfer of Learning: Not Just an Afterthought," (1994). Adult Learning, 5:4, p.21.

Oxford, Rebecca L. "Style Analysis Survey (SAS): Assessing Your Own Learning and Working Styles." In Joy M. Reid, (ed). Learning Styles in the ESL/ EFL Classroom. Boston, Massachusetts: Heinle and Heinle, 1995., pp. 208-215.

_____. Language Learning Strategies. New York: Newbury House Publishers, 1990.

Paul, Alice S. Schneider, Lois I. and Robles, Karoleen. Options in the Classroom: Decision-making in Action. Tucson, Arizona: University of Arizona, College of Education, 1993.

Perin, Dolores. "Carving a path: From Job Materials to a Workplace Basic Skills Curriculum."

Bibliography

(1994) Adult Learning, 5:4, pp. 15-17.

Philippi, Jorie W. "How to Design Instruction: From Literacy Task Analysis to Curriculum." In Taylor, Lewe and Draper pp. 237-261.

Pierce,Gloria. "Thinking Critically in the Workplace." In Maurice C. Taylor, Glenda R. Lewe and James Draper, (eds) Basic Skills for the Workplace, Toronto, Ontario: Culture Concepts. pp. 423-438.

Pima County Adult Education. Learner-directed, Participatory ESOL Curriculum. Arizona: Pima County Adult Education, 1991.

Pratt, Sidney. (ed.) English in the Workplace. (Special Edition of TESL TALK, vol. 13, no. 4), Toronto, Ontario: Ministry of Citizenship and Culture, 1982.

Raimes, Ann. Focus on Composition. New York, NY: Oxford University Press, 1978.

Reid, Joy M. (ed.) Learning Styles in the ESL/ELF Classroom. Boston, Massachusetts: Heinle and Heinle, 1995.

Richard-Amato, Patricia A. and Snow, Marguerite Ann (eds.) The Multicultural Classroom. White Plains, NY: Longman Publishing Group, 1992.

Richards, Jack. C. and Rodgers, Theodore S. Approaches and Methods in Language Teaching. Victoria, Australia: Cambridge University Press, 1986.

Robinson, Catherine and Rowekamp, Jenise. Speaking Up at Work. New York, NY: Oxford University Press, 1985.

Robinson, Lynne. Working in English (Book 1), Chicago, Illinois: Contempory Books, 1991.

Romanek, Elizabeth. Communication Skills That Work (Book 20., Chicago, Illinois: Contemporary Books, 1991.

Rossi-Li, Laura. "Learning Styles and Strategies in Adult Immigrant ESL Students." In Joy M. Reid, (ed.) Learning Styles in the ESL/EFL Classroom. Boston, Massachusetts: Heinle and Heinle, 1995., pp. 118-125.

Rubin, Joan, McKay, Sharon and Mansor, Inaam. English Works!. White Plains, NY: Longman Publishing Group, 1995.

Bibliography

Scarcella, Robin C. "Providing Culturally Sensitive Feedback," in Richard-Amato and Snow, pp. 126-141.

_____ and Oxford, Rebecca L. The Tapestry of Language Learning. Boston, Massachusetts: Heinle and Heinle, 1992.

Seelye, H. Ned. Teaching Culture: Strategies for Intercultural Communication. Lincolnwood, Illinois: National Textbook Co., 1991.

Sonbuchner, Gail Murphy. Help Yourself: How to Take Advantage of Your Learning Styles. Syracuse, NY: New Readers Press, 1991.

Stein, Wendy. Communication Skills That Work (Book 1)., Chicagol, Illinois: Contemporary Books, 1991.

Taylor, Barry P. Teaching ESL: Incorporating a Communicative, Student-Centered Component," In Michael H. Long and Jack C. Richards, rds. Methodology in TESOL. Boston, Massachusetts: Heinle and Heinle Publishers, 1987, pp. 45-60.

Taylor, Maurice C. And Lewe, Glenda R. "How to Plan and Conduct a Literacy Task Analysis. In Maurice C. Taylor, Glenda R. Lewe and James A. Draper, (eds) Basic Skills for the Workplace, Toronto, Ontario: Culture Concepts. pp. 217-236.

Taylor, Maurice C., Lewe, Glenda R. Lewe and Draper, James A. (eds.) Basic Skills for the Workplace. Toronto, Ontario: Culture Concepts, Inc. 1991.

Tomalin, Barry and Stempleski, Susan. Cultural Awareness. Oxford, England: Oxford University Press, 1993.

Vacca, Richard T. and Vacca, Joanne L. Content Area Reading. USA: Harper Collins Publishers, 1989.

Willing Ken. Teaching How To Learn. Sydney , Australia: Macquarie University, 1989.

_____. Learning Styles in Adult Migrant Education. Adelaide, South Australia: National Curriculum Resource Center, 1988.

Woodward, Tessa. Ways of Training. Essex, England: Longman Group UK Ltd., 1993.